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See Saunders' Advertisement on Page 9.

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CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

AN ADDRESS on The Ethics and Law of Drug and Alcohol Addiction, being the Sixth Norman Kerr Memorial Lecture, delivered before the Society for the Study of Inebriety on Oct. 12th, 1915, by Sir WILLIAM J. COLLINS, K.C.V.O., D.L., M.D., M.S., B.Sc., F.R.C.S., Consulting Surgeon to the London Temperance Hospital 847

ORIGINAL ARTICLES.

Notes on the Clinical Characteristics of Cases Treated as Paratyphoid Fever. By HENRY ROBINSON, M.A., M.D., B.C.Cantab., late Temporary Lieutenant, Royal Army Medical Corps; late Captain, R.A.M.C. (T.F.).—(*Illustrated*) 851

The Explanation of a Recto-urethral Anomaly, and Some Points in Normal Anatomy. By FREDERIC WOOD JONES, D.Sc., M.B., B.S.Lond., Professor of Anatomy in the London School of Medicine for Women. — (*Illustrated*) 860

Etiology and Prevention of Cerebro-spinal Fever. By HALLIDAY SUTHERLAND, M.D. Edin., Temporary Surgeon, Royal Navy 862

A Series of Cases of Transient Aphasia, Hemiplegia, and Hemiparesis due to Arterial Spasm. By J. GORDON SHARP, M.D.Edin. 863

Labour Complicated by Eclampsia and Glycosuria; Cæsarean Section; Recovery. By C. PERCIVAL WHITE, M.B., B.C. Cantab., M.R.C.S. With Remarks on the Case by JOHN PHILLIPS, M.D.Cantab., F.R.C.P.Lond. 866

The X Ray Treatment of Fungating Epithelioma with the Introduction of "Progressive" Filtration. By CHRISTOPHER KEMPSTER, M.R.C.S., L.R.C.P. Lond., Assistant Director, X Ray and Electro-therapeutic Department, Cancer Hospital, Brompton; Physician in Charge, X Ray and Electro-therapeutic Department, City of London Military Hospital 867

Memorandum on the Employment of Bandages for the Irrigation of Wound-surfaces with Therapeutic Solutions, and the Draining of Wounds. By Colonel Sir Almroth E. WRIGHT, M.D., F.R.S., C.B., a Consulting Physician to the Expeditionary Force in France.—(*Illustrated*) 879

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Empyema Following a Poisoned Arrow Wound; Natural Cure by Absorption. By JAMES FREDERICK CORSON, M.D.Vict., D.P.H. 868

A Case of Twin Ectopic Pregnancy. By GEORGE W. JOHNSON, M.A., M.B., B.Ch. Oxon., Surgeon to John Coupland Hospital, Gainsborough 869

MEDICAL SOCIETIES.

MEDICAL SOCIETY OF LONDON:

Opening Address. — Experiences in Serbia, 1914-15 869

WEST LONDON MEDICO-CHIRURGICAL SOCIETY:

Progress in Treatment 869

REVIEWS AND NOTICES OF BOOKS.

The Care of the Baby. By J. P. Crozer Griffith, M.D. Sixth edition 870

Practical Prescribing and Treatment in the Diseases of Infants and Children. By D. M. Macdonald, M.D. Aberd. 870

Common Disorders and Diseases of Childhood. By George Frederick Still, M.A., M.D. Cantab. Third edition 870

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The Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D., F.A.C.S. 870

Drink and the War, from the Patriotic Point of View. By Marr Murray 871

Miscellaneous Volumes 871

NEW INVENTIONS.

An Improved Form of Needle for Muscle and Fascia.—(*Illustrated*) 872

LEADING ARTICLES.

THE TREATMENT OF INFECTED WOUNDS 873

WAR AND ECONOMY 874

ANNOTATIONS.

An Experiment in Drink Control 875

Emphysematous Gangrene of the Neck 875

The Promotion of Vegetable Growth by Bacterized Peat 876

The Etiology of Typhus Fever 876

Charlatans and Miracles 877

Ionic Treatment of Pyorrhœa Alveolaris 877

An Epidemic of Appendicitis 877

Military Medicine Two and a Half Centuries Ago 878

The Doctrine of the Superman 878

The Late Professor Minchin, F.R.S. 879

VITAL STATISTICS:

Health of English Towns 886

Health of Scotch Towns 886

Health of Irish Towns 887

SPECIAL ARTICLES.

Experiments on Living Animals 872

Paraffinum Liquidum B.P.—II.—The Nature and Quality of the Article Supplied to the Public. — A Standard of Viscosity Preferable to a Standard of Specific Gravity.—Impurities Found According to the British Pharmacopœia. — A Wide Range of Prices Charged.—Conclusions 883

The Services: Royal Navy Medical Service. — Royal Naval Volunteer Reserve.—Army Medical Service. — Royal Army Medical Corps.—Indian Medical Service. — Special Reserve of Officers.—Territorial Force.—Territorial Force Reserve 885

CORRESPONDENCE.

The War Refugees' Dispensary: the Need for Medical Assistance (Dr. J. H. Philpot) 887

Unilateral Nervous Furring of the Tongue (Dr. Herbert French) 887

Massage in the After-treatment of the Wounded (Mr. A. Greenwood, Mr. Claude St. Aubyn-Farrer) 888

Succus Allii in the Control of Suppuration in Wounds (Dr. Wm. C. Minchin) 888

The Duration of Gestation in Woman (Dr. James Oliver) 889

EXHIBITION OF FRACTURE APPARATUS AT THE ROYAL SOCIETY OF MEDICINE.

Addresses by Sir Alfred Keogh and Sir Almroth Wright 891

THE WAR.

The Casualty List 893

Deaths among the Sons of Medical Men 893

The War and the National Health Insurance Regulations 893

War Emergency Committee 893

The Significance of Abnormal Signs in the Recruit's Heart .. 894

The Speed of Ambulance Trains 894

In Aid of the British Wounded 895

Food in War Time 895

The American Hospital, Paignton: Departure of Dr. Howard Beal 895

Emergency Voluntary Aid Committee: Baths for the Soldiers 896

Medical Help for Serbia 896

Brighton and the Wounded 896

Hospital for Invalided Soldiers at Ham Green 896

Fire at a Plymouth Military Hospital 896

Naval Hospital at Truro (Cornwall) 896

The Endsleigh Palace Hospital for Officers 896

MEDICAL NEWS.

Removal of Warsaw University Medical Classes 881

The Relief of "Alien Enemies" 881

Bristol General Hospital 866

Federation of University Women 872

King Edward VII. Order of Nurses (South Africa) 872

Bequests to West of England Charities 879

Prevention of Infant Mortality 883

Royal Sanitary Institute: Meeting at Salisbury 883

Sad Death of a Medical Man ... 884

Royal Academy of Medicine in Ireland 886

A Veteran Elgin Practitioner ... 886

Presentation to a Medical Practitioner 887

Royal Colleges of Physicians of London and Surgeons of England: Pass-list 889

Royal College of Surgeons of England: Pass-list 890

University of Glasgow: Pass-list 890

Central Midwives Board 892

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics 896

House of Commons 897

Books, &c., received 897

Appointments 897

Vacancies 897

Births, Marriages, and Deaths .. 898

Notes, Short Comments, and Answers to Correspondents ... 898

Medical Diary 899

Meteorological Readings 899

Acknowledgment of Communications received 900

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

APPLETON & CO.:— PAGE
Cannon .... Bodily Changes..... 7
Gwathmey.. Anæsthesia 7
Hall..... Borderline Diseases.. 7
Johnson .. Operative Thera peusis 7

ARNOLD:—
Andrews .. Midwifery for Nurses 6
Diseases of Children 6
Howard .... The Practice of Surgery 6
" .... Surgical Nursing and the Principles of Surgery for Nurses. 6
Hutchison.. Lectures on Diseases of Children 6
Saundby .. Urgent Symptoms in Medical Practice .. 6
Sibley ..... Treatm ent of Diseases of the Skin .. Cover 1
Todd ..... Surgical After-Treatment..... 6
Woodwark.. Medical Nursing 6

BAILLIERE, TINDALL & COX:—
Adams & Cassidy's Acute Abdominal Diseases 5
Bigg..... Indigestion 6
" ..... War Diseases (Typhus, Enteric, Dysentery, and Cholera) 6
Brooke .... Aids to Tropical Medicine .... Cover 1
Castellani & Chalmers' Tropical Medicine..... 5
Clarke .... Errors of Accommodation and Refraction of the Eye Cover 1
Fitzwilliams Practical Manual of Bandaging .. Cover 1

BAILLIERE—(Continued). PAGE
Heitzmann's Urinary Analysis and Diagnosis by Microscopical and Chemical Examination 5
Kanavel's Surgery of the Hand .. 5
Luys' Gonorrhœa and its Complications 5
McCaw's Diseases of Children 5
Morison's Disorders of the Heart. 5
Mummery .. Diseases of the Coron and their Surgical Treatment .. Cover 1
Pickerill's Prevention of Dental Caries and Oral Sepsis 5
Roberts' Surgery of the Face..... 5
Tait & Krause .. Aids to Physiology Cover 1
Tibbles' Dietetics; or, Food in Health and Disease 5
Tredgold's Mental Deficiency 5
Wright & Smith's Diseases of the Nose and Throat 5

CHURCHILL, J. & A.:—
Fenwick .. Urinary Tuberculosis Cover 1
Hare ..... On Alcoholism: Its Clinical Aspects and Treatment .. Cover 1
Hurry ..... Vicious Circles in Sociology and their Treatment .. Cover 1
Rowlands & Turner .. The Operations of Surgery .... Cover 1
Squire's Pocket Companion to B.P. 33
Warren .... Text-Book of Surgery Cover 1

GRIFFIN & CO.:—
West ..... Diseases of the Organs of Respiration Cover 1

HILTON & CO.:— PAGE
Ghosh & Das ..... Hygiene and Public Health 8

LEWIS & CO:—
De Swietochowski .. Mechano-Therapeutics in General Practice 3
Delorme .. War Surgery 3
Jones ..... Medical Electricity .. 3
" ..... Ionic Medication; the Principles of the Method, &c. 3
Martindale & Westcott. The Extra Pharmacopœia ..... Cover 1
Starr ..... Hygiene of the Nursery 7
Stitt ..... The Diagnostics and Treatment of Tropical Diseases 3
" ..... Practical Bacteriology, Blood Work, and Animal Parasitology 3
Stoddart .. Mind and its Disorders 3
Swanzy's Diseases of the Eye and their Treatment 2

LONGMANS, GREEN & CO.:—
Bayliss .... Principles of General Physiology .. Cover 1

MEDICAL PUBLISHING CO.:—
Lane, Sir A. .... Operative Treatment of Fractures 8

MURBY & CO.:—
Olver ..... Our Teeth and Our Health 8

MURRAY:— PAGE
Brunton, Sir L. .... Therapeutics of the Circulation 8

PULMAN & SONS:—
Elliot ..... Sclero-Corneal Trephining in the Operative Treatment of Glaucoma 8

SAUNDERS COMPANY:—
DeLee..... Obstetrics..... 9
Gant ..... On Diarrhœa 9
Kolmer .... Infection, Immunity, Specific Therapy .. 9
Prentiss .. Embryology 9
Saunders' New Books and New Editions ..... Cover 1
Stevens .... Practice of Medicine. 9
Tousey .... Electricity, X Rays, Radium 9

WRIGHT & SONS (BRISTOL):—
Index of Prognosis and End Results of Treatment 8
Nash ..... Evolution and Disease Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—
Stammering, Lisping, and Cleft-Palate Speech 8
Ketley—
Stammering..... 8
Matthews—
Wood: Application of Trusses to Hernia 8
Squire's Pocket Companion to the new British Pharmacopœia, 1914 ..... Cover 1

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Bristol Royal Infirmary 57
Chesterfield and North Derbyshire Hospital 57
Corporation of Leicester 59
County Asylum, Dorchester 58
County Borough of Brighton..... 57
County Borough of Southampton. 57
East Suffolk and Ipswich Hospital 57
Elder Dempster & Co., Liverpool.. 58
Harrogate Infirmary 57
Hospital of St. John and St. Elizabeth 57
Hulme Dispensary, Manchester .. 57
Leeds Public Dispensary 56
Liverpool Stanley Hospital 58
London Temperance Hospital 56
Lord Derby War Hospital, Warrington 58
Manchester Children's Hospital, Pendlebury 57
New Hospital for Women, Euston-road 58
North Riding Infirmary, Middlesbrough 56
Paddington Green Children's Hospital 58
Putney Hospital 56
Reath Union and Rural District Council 58
Rochdale Union Infirmary 58
Royal Albert Edward Infirmary and Dispensary, Wigan..... 58
Royal Devon and Exeter Hospital 57
Royal London Ophthalmic Hospital 58
Royal Portsmouth Hospital 58
Royal South Hants and Southampton Hospital 56
Royal Victoria Infirmary, Newcas.le-upon-Tyne 57
Samaritan Free Hospital, Marylebone-road 58
Secretary, Fleet-street 58
Sheffield Royal Infirmary 58
Southampton Free Eye Hospital 56
Truro Auxiliary Naval Hospital 56
Warrington Infirmary and Dispensary 57
Welsh Metropolitan War Hospital, Whitchurch 58
West End Hospital for Diseases of the Nervous System 57
West Ham and Eastern General Hospital 57
Willesden Urban District Council 57
Wolverhampton and Staffordshire General Hospital 58
Worcester County and City Asylum, Powick 56
Worcester General Infirmary 58

ASSISTANCIES, MEDICAL:—
Arnold & Sons, Giltspur-street.... 58
Bristol Medical War Emergency Committee 58
Commonwealth and Dominion Line, Fenchurch-avenue 58
Dispenser, Forest Hill 59
Hall Line, Fenchurch avenue 58
In-door, Leeds 58
No. 599, L.O., Strand 59
No. 600, L.O., Strand 59
No. 601, L.O., Strand 59
No. 602, L.O., Strand 59
No. 604, L.O., Strand 59
No. 605, L.O., Strand 59
S., Russell-square 59
Silvester, New Brighton 58
Turner, Adam-street 59

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford .. 53
Ashwood House, Kingswinford .. 55
Barnsley Hall, Bromsgrove 55
Barnwood House Hospital 51
Bishopstone House, Bedford..... 50
Brunton House, Lancaster..... 55
Buntingford House Retreat, Buntingford..... 53
Camberwell House, Peckham-road 53
Capel Lodge Retreat and Sanatorium, near Folkestone 53
Cheadle Royal..... 51
Clarence Lodge, Clapham Park .. 50
Colthurst House, Alderley Edge .. 50
Coppice, The, Nottingham..... 51
Court Hall, Kenton, near Exeter.. 55
Dalrymple House, Rickmansworth 54
David Lewis Colony, Alderley Edge 50
De Gonville Home for Invalids .. 60
Duff House, Banff..... 54
Edgar Allen Institute, Sheffield .. 56
G., Hampstead 56
Ghyllwoods 54
Grove House, Church Stretton..... 51
Grove, The, Catton, Norwich..... 51
Haslemere Nursing Home 56
Haydock Lodge, Newton-le-Willows 52
Heigham Hall, Norwich 51
Home for Epileptics, Maghull 50
Invernith Sanatorium, Colinsburgh 53
Littleton Hall, Brentwood 56
London Fever Hospital..... 51
Malling Place, Kent 51
Melbourne House, Leicester 55
Mendip Hills Sanatorium 55
Meyrick, Brighton 56
Middleton Hall, Co. Durham..... 50
Moat House, Tamworth 51
Newmains Retreat, Lanarkshire.. 55
New Saughton Hall, Polton, Midlothian 52
Nordrach-on-Dee, Banchory 54
Northumberland House, Finsbury Park 52

ASYLUMS—(Continued).
Northwoods House, Winterbourne 52
No. 381, L.O., Strand 58
No. 412, L.O., Strand 58
No. 578, L.O., Strand 56
Otto House, West Kensington 60
Peckham House 52
Pendyffryn Hall Sanatorium, Nordrach in-Wales 55
Pinewood Sanatorium, Wokingham 54
Plympton House, Plympton 51
Portsmouth Corporation Mental Hospital 55
Royal Earlswood Institution for Mental Defectives 52
St. Andrew's Hospital, Dollis Hill 53
St. Andrew's Hospital, Northampton 51
St. George's Retreat, Burgess Hill 50
St. Luke's Hospital for Mental Diseases 55
St. Raphaels, Bunted, Sussex 53
Springfield House Private Asylum, Bedford 55
Stretton House, Church Stretton.. 51
The General Manager, Cravenstreet 56
The Grange, near Rotherham 51
Vale of Clwyd Sanatorium 55
Warneford Asylum, Oxford..... 55
Wye House, Buxton 51

COMPANIONS:—
Nurse George, Whitwell, Isle of Wight 59

HEALTH RESORTS, BATHS, &c.:—
Alexandra Therapeutic Institute.. 50
Droitwich Brine Baths 50
Smedley's, Matlock 50

HOMES WANTED:—
No. 603, L.O., Strand 58

HOUSE & ESTATE AGENTS.—
Bedford & Co., Wigmore-street.... 59
Elliott, Son & Boyton, Verestreet 59
Ley Clark, Wimpole-street 60
Newton & Co., Chancery-lane 60
CONSULTING-ROOMS:—
Newman, Savile-row 60

LIFE & FIRE ASSURANCES, &c.:—
General Life Assurance Co. 43
National Provident Institution .. 44
Prudential..... 48

MASSAGE:—
Associated Male Nurses and Masseurs 48
London School of Massage..... 48

MEDICAL ACCOUNTANTS, &c.:—
Turner 59

MEDICAL AGENTS:—
Fieldhall, Limited 61
Manchester Clerical, &c., Association 60
Medical Agency..... 61
Needles, Herbert 61
Needes, J. C. 61
Peacock & Hadley 61
Scholastic, Clerical, &c., Association 61
Turner 61

MEDICAL SCHOOLS:—
(LONDON.)
London School of Clinical Medicine 47
West London Post-Graduate College 47

NURSING INSTITUTES:—
Army and Navy Male Nurses Co-operation 50
Co-operation of Temperance Male and Female Nurses 49
General Nursing Association..... 48
Hospital for Sick Children, Great Ormond-street 50
London Nurses' Association 49
London Temperance Male and Female Nurses Co-operation .. 49
Male Nurses Temperance Co-operation 48
Mental Nurses Association 48
Mental Nurses' Co-operation..... 50
Nurses' Co-operation, Portland-place 48
St. John's House 50
St. Luke's Hospital, E.C. 48
Temperance Association of Male Nurses, Ltd..... 49
Temperance Male Nurses Co-operation 49
The Retreat, York 49

OFFICIAL NOTICES:—
City of London Lying-in Hospital 47
London School of Massage 47
London School of Tropical Medicine 47
Queen Charlotte's Lying-in Hospital 47
Royal London Ophthalmic Hospital 47

PARTNERSHIPS & PRACTICES:—
Arnold & Sons, Giltspur-street.... 59
Blundell & Rigby, Strand..... 59
Lee & Martin, Birmingham..... 59
Peacock & Hadley, Craven street. 59
Turner, Adam-street 59

RAILWAY & STEAMSHIP CO.'S.:—
New Zealand Shipping Co..... 48

TUTORS & LECTURERS:—
Beckton 47
Med. Correspondence College 47
Weymouth 47

For Index to Trade and Miscellaneous Advertisements see page 4.

An Address
ON
THE ETHICS AND LAW OF DRUG AND ALCOHOL ADDICTION,

Being the Sixth Norman Kerr Memorial Lecture, delivered before the Society for the Study of Inebriety on Oct. 12th, 1915,

BY SIR WILLIAM J. COLLINS, K.C.V.O., D.L., M.D., M.S., B.Sc., F.R.C.S.,
CONSULTING SURGEON TO THE LONDON TEMPERANCE HOSPITAL.

[Sir William Collins began his address by an eloquent tribute to the personality of the late Dr. Norman Kerr. He pointed out the close relations existing between drinks, drugs, and poisons, and the connexion between insanity and inebriety, which he defined as "a disease of the will." Coming to the subject proper of the lecture, he continued:—]

Alcohol and drug addiction are to be regarded as examples of the surrender of self-control in favour of self-indulgence, of the voluntary preference for the lower in the presence of the higher alternative of volition, exercised in obedience to appetite rather than to the "higher command" of conscience. Those who, on the other hand, are committed to a physical causation of inebriety, and to a determinist philosophy, must, it seems to me, flounder in the quicksands of responsibility and irresponsibility, and will continue to search in vain for something out of a bottle, or, maybe, a hypodermic injection, wherewith to redeem the sot and rehabilitate the will.

THE RÔLE OF LEGISLATION.

Many, various, and often inconsistent have been the means whereby Governments have for centuries endeavoured to limit, while licensing, the sale of alcoholic drink, "to supply a supposed public want without detriment to the public welfare,"[1] to repress drunkenness, and also, more recently, to reclaim the drunkard. Free trade in beverages so potent in provoking "such intolerable hurts and troubles to the Commonwealth," as the preamble of the Act of Edward VI. (1551) described them, has been and is, by general consent, voted out of the question, and though in the early half of the eighteenth—and again in the "thirties" as well as in the "sixties" of the nineteenth—centuries, by administrative or legislative perversity there were reversions towards free trade in liquor, the trend in this country has been uniformly in the direction of local control and regulation of the public sale of alcoholic drinks. The zeal and initiative at the back of the administrative machinery have varied enormously from time to time, slumbering in the dark days as depicted by Smollett[2] in his description of the gin-shops, or as satirised by Sydney Smith[3] when he repented him of his advocacy of free trade in beer; and, on the other hand, as was to be anticipated, awakened and invigorated by the "new philanthropy" of the Wesleys, Wilberforce, Howard, and Romilly, during the last quarter of the eighteenth century, and again by the temperance movement which the last two generations have witnessed.

[1] Report of Committee of Convocation of Canterbury, 1869, and Resolution of House of Commons, June, 1880.
[2] History of England, vol. ii., ch. xviii., p. 430.
[3] Lady Holland's Memoir of, vol. ii., p. 310.

THE SPIRIT OF OUR LAWS.

The principle upon which Governmental intervention with the liberty of the subject in the matter of drink and the drunkard has been based and defended has generally been the so-called "Law of Equal Liberties." Thus it is said: "We only step in when obvious and serious annoyance, danger, or wrong would result to others. ..... A man may, within very wide limits indeed, act foolishly and disgracefully, and do himself considerable injury as an individual, but the moment he does anything that will injure or wrong others, or tempt or induce them to do what will injure them or the community, the law steps in." The law as to sale of drink and drunkenness, it is held, illustrates the same point.[4]

We are here, of course, face to face with the well-known principle of the law of equal liberties as enunciated by Herbert Spencer, John Stuart Mill, and Wilhelm von Humboldt. As put by Mill in his "Essay on Liberty" it runs thus: "The only purpose for which power can be rightly exercised over any member of a civilised community against his will is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant. He cannot be rightly compelled to do or to forbear because it will be better for him to do so, because it will make him happier, because, in the opinion of others, to do so would be wise or even right. Over himself, his own body and mind, the individual is sovereign." Humboldt, whom Mill cited as an authority, put the same principle thus. He said: "The State is to abstain from all solicitude for the positive welfare of the citizens, and not to proceed a step further than is necessary for their mutual security and protection against foreign enemies, for with no other object should it enforce restrictions on freedom. ..... The State, then, is not to concern itself in any way with the positive welfare of its citizens, and hence no more with their life or health, except when these are imperilled by the actions of others." These doctrines may sound somewhat out of date to the ears of the social reformers of to-day, and eugenists and sociologists now present us with a new principle wherewith to inspire legislation. We are told that social instincts, though arriving late in time, are to be conceded precedence over individual instincts, that when there is conflict between social action and self-regarding action the law is to step in and forbid that which is inimical to the cohesion of society. This reads like a resuscitation of Rousseau's *contrat social*, which had been discarded at discretion, and with easy descent would lead to the odious dictum that minorities and *a fortiori* individuals have few or no rights at all. If a mere majority, by Parliamentary vote or plebiscite, is arbitrarily to decide what they may consider to be socially right in opinion and action, and to enforce it against whatever they are pleased to deem anti-social in thought or deed, then the days of Liberty will verily be numbered, and Mill will have written in vain: "If all mankind minus one were of one opinion, and only one person were of the contrary opinion, mankind would be no more justified in silencing that one person than he, if he had the power, would be justified in silencing mankind." We might live in a benevolent despotism, a community of well-conducted and well-cared-for slaves, a menagerie of well-regulated animals, but it would be despotism and slavery all the same.

[4] See Memo. by Mr. T. P. Whittaker, R. C. Report, 1899, p. 300.

I think we shall pursue a safer path if we follow the line indicated by Mill, though not fully worked out by him, when he came to deal in Chapter V. of his Essay with the translation of his principle into practice. After brief reference to restrictions on trade, to the Maine Law and the opium traffic, he proceeds to speak of the sale of poisons, which, he asserts, "opens a new question." He enumerates principles which have been adopted as the bases of our Pharmacy and Poisons Acts. In regard to strong drink he says: "The interest of these dealers in promoting intemperance is a real evil, and justifies the State in imposing restrictions and requiring guarantees which, but for that justification, would be infringements of legitimate liberty." He similarly justifies taxation of commodities the use of which, beyond a very moderate quantity, is positively injurious.

SLAVERY OF THE WILL.

Mill next comes to the application of the principle of liberty to the slave trade. Is a man to be free to sell himself as a slave, seeing that the transaction may be his own choice and may not affect anyone but himself? If not, why not? The answer supplied is that, "by selling himself as a slave he abdicates his liberty. ..... He therefore defeats, in his own case, the very purpose which is the justification of allowing him to dispose of himself. ..... The principle of freedom cannot require that he should be free not to be free. It is not freedom to be allowed to alienate his freedom"; and Mill adds, "These reasons, the force of which is so conspicuous in this particular case, are evidently of far wider application."

Now I venture very respectfully to submit that these reasons and this principle, which touch the kernel of the whole matter, are capable of application to the very question we have in hand. I have advocated this view on more than one occasion, and I consider that this principle was the foundation of the International Opium Convention, in drafting which I lent a hand, and, though partially and imperfectly recognised in some of our legislation, it is well worthy of, as it is, according to Mill, capable of, "far wider application." It is the restraint of liberty to secure a larger and truer liberty. It is the limitation of self-will in the interests of free-will and self-control. It is the repression of self in the cultivation of self-hood; the subordination of the lower self to the higher self. The suppression of slavery from within as well as from without.

It is doubtless a principle which needs to be jealously safeguarded alike against undue application and undue neglect. Its appeal must be ever to the worthier choice, the voluntary decision of the better self, from Philip drunk to Philip sober. The mind appealed to must be a spontaneous individuality, not a mind, as Mill would say, "in some state of excitement or absorption incompatible with the full use of the reflecting faculty," nor so infantile or animal as to be amenable only to merely prudential regulation or to automatic direction, in consequence of either acquired or congenital conditions.

If we call inebriety a disease we must not thereby acquit its subject of all responsibility; if we call it a vice or a crime we must not on that account relinquish remedial in favour of purely punitive treatment.

RECENT LEGISLATIVE ENDEAVOUR.

Now both the Scotch and English Departmental Committees of 1908–09 favoured greater and earlier resort to compulsory detention in reformatories as the sovereign remedy for inebriety, although they both appeared to justify such procedure not less on the ground of benefit to society by prolonged segregation, than on that of rehabilitating the individual delinquent. I have little to add on the subject of institutional treatment to what I said in my paper of 1903, except that it affords at best a very partial relief for the evil under consideration. As a reformatory measure it is often applied too late, and except by voluntary acquiescence is only available to a small and confirmed class of those who have come under the cognisance of the law. As a segregatory measure it is little else than a counsel of despair. So long as access and resort to strong drink and other poisons of addiction remain as easy and conventional as they are, institutional treatment for the not too well selected few is from the national standpoint like drawing water in a sieve. The English Committee got its reference extended to include a consideration of alternative treatment by way of drugs, but dismissed that line of research and procedure as impracticable, since, even if successful, they wisely doubted the feasibility of enforcing medical treatment by Act of Parliament. There are many drinks, drugs, and poisons which can enfeeble volition and weaken self-control, but no medicine in or out of the Pharmacopœia is endowed with the property of augmenting the will or ennobling the conscience. Both committees, however, were nevertheless of opinion that whatever measures were applicable to the victims of alcoholism should be extended also to the habitués of narcotic drugs.

The English Committee said:[5] "We have been satisfied by evidence that an appreciable number of persons become helpless and degraded by the excessive use of narcotic and stimulating drugs or preparations other than alcohol. ..... We are of opinion that any future Act applicable to drunkards should apply to drug-takers also. We think the word 'inebriate' should be adopted in any future Act, so that it may include those addicted to drugs as well as drunkards." The Scotch Committee also found that: "It has been shown to us that the words 'habitual intemperate drinking of intoxicating liquor' have unduly restricted the scope of the Acts, in respect that the words do not 'include the use of drugs, or the use of intoxicants in other ways than by drinking"; and they suggest the substitution of the words "takes or uses any intoxicant or narcotic."[6]

When I was in the House of Commons I remember backing a Bill which had for its object the limitation to medical or competent persons of the administration of anæsthetics. The abolition of the consciousness of another by the use of drugs surely requires more supervision and safeguarding than are at present accorded to it.

Dr. Norman Kerr very truly said: "All the alcohols are poisons, are irritant, narcotic anæsthetic poisons,"[7] and in a note he added, "alcohol is a poison in the same sense as arsenic or prussic acid, chloroform or *Cannabis indica* is a poison. Whether small doses of these poisonous substances can be regularly taken without injury is not discussed in this book," and there was much point in the observation. Again he said: "What is commonly called the opium habit is a true inebriety;"[8] but it is a solitary indulgence, not social like alcohol,

[5] Cd. 4438, p. 10.
[6] Cd. 4766, p. 4.
[7] "Inebriety," 2nd ed., 1889, p. 74.
[8] Ibid., p. 95.

and he added, "the pathological changes which have been observed in opism are few and limited."[9]

THE INTERNATIONAL OPIUM CONVENTION.

Now, the principles embodied in the International Opium Convention of 1912 appear to me to gather up and give point and purpose to the views which I have been endeavouring to adumbrate. It is curious that in this case international law, or at any rate convention, has, perhaps rather as the result of a chapter of accidents than of original design, got in advance of most national enactments or ordinances. What are those principles? They are:—

1. That certain noxious agencies, which by habitual use enfeeble the will and imperil self-control, should be brought under regulation in a way somewhat similar to that in which poisons are, or ought to be, brought under regulation by Pharmacy and Poisons Acts.

2. That the use of such agents should be restricted to medical and legitimate purposes only.

3. That not only national but international control of the traffic in these noxious agents is required in order to be successful.

4. That such national and international regulations should have regard only to preparations of these agents in such strengths and in such forms as are liable to cause individual or social injury; and

5. That such regulations should be capable of extension to other agents, if and when they are shown to be liable to similar abuse.

Thus the Shanghai Commission of 1909, at which a dozen Powers only were represented, and which primarily concerned itself with the opium traffic in the Far East, led to a world-wide movement which at the Third Hague Conference in 1914 secured the adhesion of 44 nationalities to a convention directed against the abuse of morphine, cocaine, and their preparations and derivatives, and those of other alkaloids of opium or cocaine giving rise to analogous abuse or producing like injurious results. Articles 9 and 14 are particularly significant. Article 9 recites that: "The contracting Powers will enact pharmacy laws and regulations so as to limit the manufacture, sale, and use of morphine, cocaine, and their respective salts to medical and legitimate uses only, unless such laws already exist. They will coöperate amongst themselves in order to prevent the use of these drugs for any other purpose." While Article 14 adds that: "The contracting Powers will apply the laws and regulations for the manufacture, import, sale, or export of morphine, cocaine, and their respective salts to—(*a*) medicinal opium; (*b*) to all preparations (officinal and non-officinal, including the so-called anti-opium remedies) containing more than 0·2 per cent. of morphine or more than 0·1 per cent. of cocaine; (*c*) to heroine, its salts and preparations, containing more than 0·1 per cent. of heroine; (*d*) to every new derivation of morphine, cocaine, or their respective salts or to any other alkaloid of opium which, as the result of scientific research, shall be generally recognised as giving rise to analogous abuse or as producing the same injurious results."

These articles when put into operation will have far-reaching consequences. The official-minded distinction sometimes attempted between the evils of opium-smoking on the one hand and the benefits of opium-eating—especially in the case of "LO, the poor Indian," (!)—on the other, or between the relatively harmless effect of opium—especially Indian opium—and the perniciousness of morphine and cocaine, can no longer be sustained. They are one and all so-called habit-forming bodies or drugs of addiction. Our pharmacy legislation will indeed require radical amendment when the articles of the Opium Convention of 1912 are put into force.

[9] "Inebriety," 2nd ed., 1889, p. 101.

RADICAL REFORM OF PHARMACY AND POISON LAWS REQUIRED.

The Report[10] of the Select Committee on Patent Medicines (1914) has served opportunely to remind us how chaotic and obsolete our pharmacy and poison legislation is. It incidentally remarks that several well-known patent medicines have been found to contain morphine. As regards the enormous trade in medicated wines, kept up by a huge system of advertisement, the Committee find "there can be no doubt that many persons acquire the 'drink habit'[11] by taking these wines and preparations, either knowing that they are alcoholic, since they can be purchased and consumed without giving rise to the charge of 'drinking,' or in ignorance that they are highly intoxicating liquors." Several of them are as strong or stronger in ethylic alcohol than port or sherry, and the recommended dose of one of the best known of them "equals one wine-glassful of whisky per day."

The underlying principle of the Pharmacy Acts is sound so far as it seeks to restrict the use of the more dangerous drugs to legitimate purposes; but the facility with which the same prescription may be made up over and over again, and the doubtful value of the checks upon sale to the public of the more perilous drugs, those enumerated even in Part i. of the schedule as now amended, are notorious. Moreover, attention is directed rather to poisons which hurt the body than to those which destroy the will. There curiously appears to be no true statutory definition of a poison. By the Offences Against the Person Act, 1861, administration of poison with intent to inflict bodily harm is penalised. Under the Poisoned Grain Prohibition Act, 1863, alone is the sale of any poison forbidden, although the White Phosphorus Act, 1908, prohibits the sale of matches made therewith.

John Hunter used to say that definitions are of all things the most damnable, yet in any new pharmacy legislation some attempt may be made in this direction. Possibly, too, a salutary reform would be effected if medical men would think, not once or twice, but many times, before prescribing potent drugs of addiction for internal exhibition if, as is often the case, simpler and non-abusable remedies would meet the occasion. Some well-known practitioners have forsworn the use of any poison as a drug without apparently sacrificing either life, practice, or reputation; and I remember one old physician, when deprecating the poly-pharmacy of house physicians, pithily remarking, "Because a man is ill that is no excuse for poisoning him."

ALCOHOL AS DRUG AND POISON.

It was not surprising that at the first Opium Conference at The Hague the logical mind of the French delegates led them to propose the inclusion of alcohol in the terms of the Convention, since they alleged that in their colonial possessions in the Far East the suppression of the opium evil was leading to the substitution of alcohol, and thus producing a "social danger of prime importance."[12]

[10] Report No. 414, 1914, p. xix.

[11] Ibid., p. xiv.

[12] In South America prohibition of alcohol among the negro population appears to have fostered a clandestine traffic in drugs, especially cocaine. See "The Question of Alcohol," by E. H. Williams, M.D., New York.

The American delegation also unsuccessfully advocated restrictive regulations in regard to haschisch, or Indian hemp. It is clear that several of the high contracting parties to the Convention of 1912 recognised that the principles which it embodies are capable of wider application than that for which provision is already made, and that consistency demands that all noxious agencies endowed with like injurious potentialities should come under similar regulation; otherwise the repression of one or of a few will only open the way for the substitution of others.

It may almost seem a mockery at the present time to talk of international coöperation or of measures of social reform. Yet exactly a hundred years ago, when the Congress of Vienna assembled at the close of the Napoleonic wars, another humanitarian movement was ripening for solution while the continent of Europe was convulsed with internecine strife. The first-fruits of that congress, mostly notorious for intrigue and grab, were, be it remembered, the abolition of the slave trade, on the initiative of the British Plenipotentiary inspired by Wilberforce and Romilly. We may, in truth, be nearer to other humanitarian reforms than we have been inclined to believe. In truth, are we not witnessing, amid the smoke and flame of the world-wide conflagration, a searching of hearts and national self-revelations of what is rotten in the body politic? While emancipating Europe from the tyranny of materialism and militarism, the Allies are also emancipating themselves from a tyranny not less enslaving in its ultimate effect. Have we not seen Imperial Russia, recognising the evils of vodka, closing drinking shops and saloons, forbidding the sale of liquor in the vicinity of camp and barracks, and empowering local authorities to prohibit the sale of all strong drinks, with results in sobriety and enhanced efficiency almost incredible, thus proving yet again "How oft the sight of means to do ill deeds makes ill deeds done"? Have we not seen how our nearer ally, Republican France, aware of the absinthe peril, by Ministerial decree has prohibited the use of the "green fiend" and of similar beverages, while at the same time considerably reducing the number of wine and spirits shops, showing once again how law may assist volition by rendering opportunity to gratify the lower choice less facile and less frequent. The Académie de Médecine in July last recommended the prohibition of the manufacture and sale of alcoholic beverages containing more than a certain percentage of alcohol and of certain essences and sweet liqueurs, while urging that, upon beverages with a moderate amount of alcohol, a super-tax should be imposed.[13]

RESTRICTION ON DRINKS AND DRUGS OF ADDICTION REQUIRED.

Early in April of this year[14] I wrote a letter to the *Times* in which I said: "In China opium, in Russia vodka, in France absinthe, in the Near East Indian hemp, are recognised as drugs and race poisons which are liable to produce moral, mental, and physical degeneration, to paralyse volition and enslave character. Does not the charge now made against ardent spirits in this country place them in the same category?" I urged not prohibition, but restriction of preparations containing more than a moderate percentage of ethylic alcohol as if they were, what in fact they are, poisonous drugs. On April 29th in the House of Commons the Chancellor of the Exchequer unfolded the then Government's proposal for dealing with drink, in view of the disclosures as to "bad time kept in shipbuilding, munitions, and transport areas," since embodied in White Paper No. 220. He said: "We have come to the conclusion that we ought to make an effort to restrain as much as possible the sale of spirits and of the most alcoholic of beer," and for that purpose to levy heavy surtaxes on these liquors as well as upon wines. The press and the public generally at first pronounced the proposals "reasonable." But the native hue of resolution was sicklied o'er by the pale cast of thought or vested interests and other lions in the way proved too strong; the new taxes were thrown over and the "drastic proposals," originally made, were whittled down into minor, though valuable, administrative regulations and restrictions made by the Central Control Board to be observed in certain munition areas. Recent reports to that Board have proved the potency for good of reduced facilities for tippling.

Meanwhile, in the United States, the spring of this year saw the passing of the so-called Harrison Law, which has embodied for national purposes, and in a stringent form, the principles contained in the Opium Convention in regard to all the stronger preparations derived from opium or coca, including morphine, cocaine, heroine, and codeine. We have all heard of the legislator who "was in favour of the law, but against its enforcement," and I am well aware that legislation too much in advance of public opinion is ever liable either to reversal by reaction or to fall into disrespect by aiming at more than can be achieved. Yet legislators, like individuals and the public generally, ought to act in accord with the better and not the baser self, the higher and not the lower command, and, while avoiding the utopian, should seek ever to be above rather than below the greatest common measure of the morality of mankind. I am convinced that little progress towards individual and national sobriety will ever be effected unless our statesmen take their courage in both hands, and either by heavy duties or penal restriction confine to medical and legitimate purposes all drugs of addiction, of which alcoholic beverages containing more than a moderate proportion of spirit are the most widely resorted to and the most pernicious.

If opium were as easily obtainable and as freely indulged in in this country as are strong preparations of alcohol I think we should regard the shutting up of a few of the more obnoxious morphinomaniacs in reformatories, for the benefit of themselves or others, as a far from radical method of grappling with the scourge.

The truth is, we are not confronted, as a right reverend prelate once disingenuously put it, with the choice between a country being either temperate or free. No country and no personality can be truly free unless truly temperate. It is not merely a question of following a blind sociology into means of repressing so-called anti-social conduct. It is the occasion for national as well as individual emancipation from a thraldom, comparable to slavery, which has too long flourished under the sanction and protection of the law.

May we not say with Lowell, in "The Present Crisis":—

> New occasions teach new duties,
> Time makes ancient laws uncouth,
> They must upward be and onward
> Who would keep abreast of truth.

[13] Brit. Med. Jour., August 21st, 1915, p. 299.
[14] Times, April 19th, 1915.

NOTES ON

THE CLINICAL CHARACTERISTICS OF CASES TREATED AS PARATYPHOID FEVER.

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WHILE serving in the British Expeditionary Force I have had the care of a number of cases whose clinical characters differ from anything I have met with in civilian practice, and seem to me to be sufficiently interesting to repay analysis. It is necessary at the outset to explain that the title of this essay connotes only the results of my own personal observation on a series of cases seen within a space of some months. I had little opportunity of consulting the literature on the subject of the paratyphoid fevers, which at least left me with an open and unbiassed mind. Imperfect and incomplete as these notes are, they have one advantage from a statistical point of view over all compilations which are from the work of diverse observers—that is, they were taken and kept up on a uniform system by myself alone, and the whole of the records are as faithful and as accurate as I was able to make them.

In the hospital where these cases were treated certain wards were allotted to the enteric group of fevers. The admission of a patient to these wards involved, therefore, three separate problems of diagnosis. Is the patient suffering from a fever of the enteric group? Is he suffering from typhoid fever or from one of the paratyphoid fevers? Which of the paratyphoid fevers is he suffering from? The final word upon these questions rested, inevitably, with the bacteriologist. I was exceptionally fortunate in having as colleagues in this department, successively, Lieutenant M. K. Acheson, R.A.M.C., and Lieutenant D. Elder, R.A.M.C.; and in Corporal F. Williamson, R.A.M.C., they had a laboratory assistant of very unusual ability. Without their valuable aid the diagnosis of many of these cases would never have been established, and would have been entered in one or other of those unsatisfactory categories "influenza" and "debility." But although the basis of classification of my cases is essentially a bacteriological one, it must not be supposed that reliance was placed wholly, or even mainly, on the laboratory for the diagnosis. With a few exceptions all the cases about to be discussed were admitted to the enteric isolation wards as clinically suspect. It is true that as my experience increased I was prone to isolate cases which originally I should, perhaps, not have been disposed even to suspect; but this was because I learnt that certain types of sick soldier were very likely to develop rashes and other signs of an enteroid character, and also to yield a paratyphoid bacillus in the laboratory. I shall exclude from my purview all the cases of typhoid fever and also two cases in which, though they were clinically mild paratyphoid, bacillus typhosus was isolated from the fæces. This leaves 89 patients admitted as enteric suspects from the time I took charge of the wards up to a certain day, chosen because I could not hope to get complete data of all the cases admitted thereafter. No form of selection other than this limitation has been practised. Of the 89 patients, in 47 a paratyphoid bacillus was isolated from the blood, fæces, or urine. Of the remaining 42 cases a small number were perhaps not enteric cases at all; but the clinical course of the great majority of them resembled so strongly that of the former group that probably more complete investigation would have resulted in isolation of a paratyphoid organism. I shall therefore briefly discuss this group of 42 cases afterwards, confining myself at present to the 47 in which the diagnosis was apparently established. Here it may be remarked that complete bacteriological (and clinical) investigation was in many cases impossible for military reasons; and that when on one occasion special facilities were obtained for studying very completely a group of 24 cases admitted and isolated on clinical evidence, a paratyphoid organism was ultimately cultivated from 23 of them.

Forty-seven Cases Diagnosed Bacteriologically.

As far as I can judge, there is no difference clinically between infections with paratyphoid A and those with paratyphoid B; the differential diagnosis can only be made on bacteriological evidence. In 13 of these cases paratyphoid A was definitely isolated and identified, and in 29 paratyphoid B. In two more cases an organism giving all the cultural reactions of paratyphoid B was obtained, but it failed to pass the Bordet-Durham test in the highest dilutions (1 in 2000). In one case paratyphoid B and typhosus were isolated at different stages of the illness; in a second paratyphoid B was isolated, and at another time an organism possessing some of the cultural characters of typhosus; and in a third organisms were isolated at different times which seemed to be paratyphoid B and typhosus respectively, but neither of them would fully satisfy the Bordet-Durham tests for those two organisms.

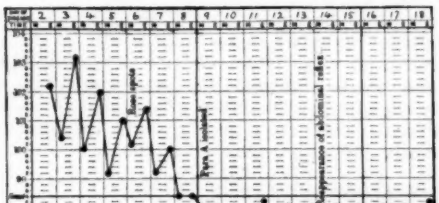
Pathology.—As no fatality occurred among the 47 cases little light can be thrown on the pathology of paratyphoid fever. In one case the bacillus was isolated from the blood, and it is quite possible that a systemic infection is common in the earliest stages of the disease. Infection of the urinary tract also suggests a blood-borne contagion. The frequent presence of paratyphoid bacilli in the fæces, together with initial rectal hæmorrhages, suggest very strongly ulceration of the bowel; beyond that it is hardly possible to go.

Etiology.—On the sources of infection these notes throw no light; all but one of the patients came to hospital already suffering from the disease, and the one exception is dealt with in the following paragraph. The cases were necessarily all males, of picked physique, and in the prime of life. There was no marked preponderance of cases among very young soldiers; 6 were under 20, but 9 were over 30. The mean age was 24 and the average age 26. The youngest was 18 and the oldest 45.

Incubation period.—One patient developed symptoms on the eleventh day after his admission to hospital for a simple fracture of the clavicle, caused accidentally. So far as is known, he never came into contact with any paratyphoid case in hospital before his symptoms developed. His infection was probably contracted in the field, which he left 13 days before his symptoms began; but the casualty clearing station and the ambulance train are possible avenues of infection which cannot be excluded. It is more than likely that this man's incubation period was at least 13 days; it is practically certain that it was more than 11. The temperature chart of this case is of especial interest in that it shows how brief may be the total pyrexial period in paratyphoid fever. The record (Chart 1)

begins on the day after the symptoms of invasion, which were headache and abdominal pain. Rose spots were present on the sixth day, and paratyphosus A was isolated from the fæces on the ninth. A physical sign of some interest was the absence of the abdominal reflex during the fever

CHART 1.



and its reappearance on the fourteenth day. There is another case (Chart 12) which also illustrates a complete pyrexia of short duration; this case, as will be seen, was not proved up to the hilt bacteriologically, but I have very little doubt that it was a paratyphoid infection.

Symptoms.

The *invasion* of the disease is sometimes as insidious as that of typhoid fever often is. There are cases in this series in which men continued to do their duty in the trenches for two weeks or more after their first symptoms, and before reporting sick. But in the majority of cases the invasion is more rapid; frequently the patient can give a definite date on which he felt more or less acutely ill, whereas previously he had been in good—even unusually good—health. In 12 cases out of the 47 the patient arrived at the base within a week of the first onset of his symptoms; in 22 cases during the second week; and in 12 cases later than the second week; the remaining patient, as already mentioned, fell ill after arrival at the base for another ailment.

The first symptoms are usually headache and abdominal pain. Occasionally these are preceded by other symptoms, such as diarrhœa, shivering fits, nose bleeding. In a few cases headache is a later symptom, not appearing till the fourth or fifth day of illness, but this is quite exceptional. It lasts as a rule longer than any other symptom, often for two or three weeks, but is rarely very intense. It was complained of in 44 out of the 47 cases. A history of definite initial shivers was given by 23 of the patients.

Abdominal pain is seldom very severe, and in many cases had disappeared before the patient's admission; it was present in 36 cases. It is usually more severe on the right side than on the left, but is sometimes almost confined to the splenic region. Vomiting was noted in nine cases, nearly always at the onset. Diarrhœa, seldom lasting longer than three or four days, was another early symptom and occurred in 16 cases. Constipation, on the other hand, was complained of by 15; the remainder were normal in this respect. Blood was present in the stools at or near the onset in two cases.

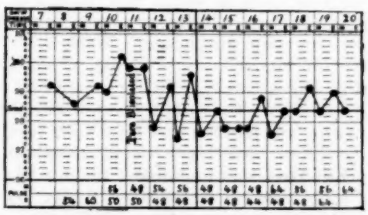
Cough was, or had been, present in 26 cases; it was nearly always quite loose and subsided rapidly. Another very common symptom was pains in the limbs, which 19 of the men complained of. In a proportion of these the pains were really severe. The legs were more affected than the arms; in two or three cases it was noticed that as the lower limbs improved the upper ones became affected; there was never any outward sign of inflammatory changes in them. Pain in the back was also troublesome occasionally, and was remarked 16 times in all. Sore-throat was complained of 10 times; some faucial redness was often visible, but ulceration, tonsillar swelling, and glandular enlargements were conspicuously absent. Nose-bleeding was present in 14 cases, generally during the first three days. In two cases hæmoptysis was described; and if, as seems probable, the blood was really from the nose, the number of epistaxis cases rises to 15, a distinctly remarkable feature of the series.

Physical Signs.

It was rare to find a patient looking seriously ill or exhibiting the typical typhoid state. Indeed, there were only two or three who were even delirious, and for comparatively short periods at that. The face was seldom flushed. Herpes labialis was present in two cases. The tongue was frequently furred, sometimes very densely and for a long period, but more often moderately and for but a few days. In spite of the frequency of loose cough, signs of definite bronchitis were present in four cases alone.

The heart was seldom dilated; in two or three of the more severe cases a moderate and transient dilatation was noticed. In one of the slighter cases a similar phenomenon occurred, but the stopping of illicit smoking was soon followed by return of the apex beat to its previous position. Cardiac irregularity was hardly ever seen. The pulse was not infrequently dicrotic at the height of the attack, and its rate presented certain points of interest. In some of the severer cases it exceeded 100 per minute during the height of the pyrexia, but in no case did it reach 130. Much more often it conformed to the usual typhoid-rate of 80 to 100, and was frequently less than this, even while a considerable degree of pyrexia was still present. Indeed, it was not unusual to find a pulse-rate of under 60 coexisting with a temperature of 100°, 101° F., or even more; in one case a rate of 56 was

CHART 2.



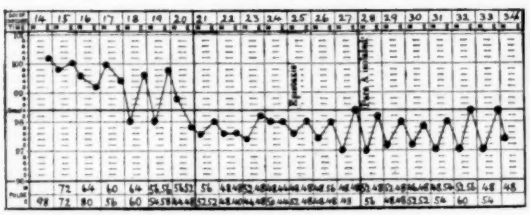
charted simultaneously with a temperature of 102° (*vide* Chart 4). Charts 2 and 7 show this feature very markedly, but are by no means unique in the series.

This man complained of general malaise, headache, abdominal pain, cough, pain in the chest, and slight sore-throat, originating seven days before admission. At the onset there was diarrhœa, followed later by constipation. There were no rigors, no vomiting, no epistaxis. On admission he complained chiefly of pain in the chest, cough with expectoration, and slight headache. The abdomen was distended; the abdominal reflex present. The spleen could not be felt. There were no spots. There were no abnormal

physical signs in the chest. Abdominal distension continued for a week, as did slight irregular pyrexia. The blood was negative. On the eleventh day paratyphoid B was isolated from the fæces. The Widal reaction was negative for paratyphoid A, positive for paratyphoid B (1 : 50), and for typhosus (1 : 100). The man had been inoculated twice, shortly before he fell ill. On the eighteenth day of the illness the temperature rose very slightly, and two or three spots appeared which were regarded as suspicious, but not sufficiently definite to be diagnosed as rose spots.

It will be observed that the pulse-rate of this man on several occasions was lower than 50. These exceedingly slow rates were not exceptional, but were actually the rule after defervescence and were not at all rare before it. In one case (Chart 3) no fewer than 30 distinct readings of 40 to 48 were charted, spread over a period of 15 days; the pulse was charted as a rule four times a day, or less if the patient happened to be asleep.

CHART 3.



The first symptom was pain in the abdomen; headache began two days later. There was no diarrhœa, no constipation, no vomiting, no sore-throat, no cough, no nose-bleeding, no shiverings. On one occasion he coughed up blood; but as apart from this there was no cough, it is probable that this was merely an epistaxis. On admission on the fourteenth day of the disease the temperature was just over 100° F. and the pulse was 98. The tongue was cleaning. The abdomen was not distended and the abdominal reflex was present. The spleen was not palpable. There were no spots. There were no abnormal signs in the chest. The blood was negative. The Widal reaction was positive in the dilutions indicated: typhosus, 100; paratyphoid A, 100; paratyphoid B, 25. All the symptoms subsided very quickly; no spots appeared throughout the case. On the twenty-fourth day the Widal reaction was positive for typhosus (100) and for paratyphoid A (100); negative for paratyphoid B. On the twenty-fifth day there was epistaxis. On the twenty-eighth day paratyphoid A was isolated from the fæces. On the thirty-third day the Widal reaction was positive for typhosus (50); for paratyphoid A (300); for paratyphoid B (50). The patient had been inoculated twice about three months before he fell ill. From the nineteenth to the thirty-first day inclusive the pulse-rate never reached 60, but fluctuated between 40 and 58 in 48 separate observations.

Another remarkable case in this respect happens not to be included in my series because the patient was admitted after the date fixed for the purposes of this paper. For five days this man's pulse-rate was not found to exceed 48, and for nine days it did not exceed 55.

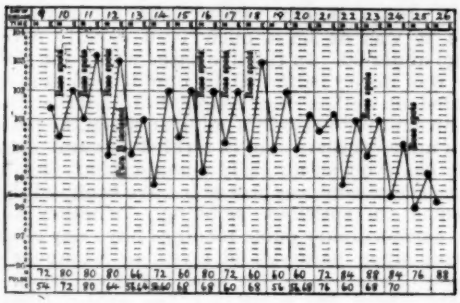
Although this case is not included in my statistics, it is perhaps admissible to digress for a moment in order to give a brief outline of it. On a certain day the patient felt out of sorts. Next day diarrhœa began. On the fourth day he complained of headache and nose bleeding, and fainted whilst on the march. On the seventh, eighth, and ninth days he was observed to be passing blood in his (diarrhœic) stools. The temperature was 101·4° F. on the eighth day, and by the tenth day the fever had subsided entirely. On the thirteenth day he had definite rose spots, which were fading on the fourteenth day. The only other symptom was a loose frequent cough, which lasted for some days but subsided without any definite signs of bronchitis having been detected.

Analysis of the 47 paratyphoid cases shows that in 27 of them the pulse-rate was at least once (and nearly always several times) under 50, while in 15 more it was at least once (and usually several times) under 60. In the five cases where the pulse-rate was never below 60, in one B. typhosus was isolated as well as paratyphoid B, in another there was an acute cholecystitis going on when the patient came under observation, in a third femoral thrombosis came on as an early complication, and in a fourth the patient was proved to have been indulging in some surreptitious smoking. Whether these very extraordinary pulse-readings have any clinical bearing upon paratyphoid fever, or whatever the disease of these men was, is a thorny question. In casting about for possible other explanations of them, one suggestion that has been made is that they are the result of previous fatigue and exhaustion incurred during the campaign. Against this, it has to be remembered that the conditions of trench warfare now existing and the magnificent commissariat arrangements of the British troops make this summer campaign of 1915 a much less exhausting affair (physically) than most other wars have been; in particular the South African War is a recent instance where fatigue and exhaustion were infinitely greater and more widespread. Furthermore, the man who developed his symptoms 11 days after admission, during which time he had been living a life of ease and abundance, exhibited as slow a pulse-rate during convalescence (see Chart 1) as those who came straight from the firing line. Another suggestion put forward was that confinement to bed on a much reduced diet after a quite brief and mild (i.e., non-exhausting) illness might produce a very slow pulse-rate in anyone. This explanation fails to take into account the cases in which pulse-rates of 48 or thereabouts coexisted with temperatures of 100° F. or more, and also those in which very slow pulse-rates were found in cases where the attack had been by no means brief or mild. Furthermore, the diet prescribed (as will be seen later) was far removed from starvation, though it was certainly stringent. Amongst soldiers admitted for other diseases and for wounds this very slow pulse-rate was not observed, save in the cases of two men admitted for obscure pyrexial diseases, one of which was believed to be malaria and the other an abortive cerebro-spinal fever. These two patients had pulse-rates below 60 on one or two occasions each, but never below 50.

I ought to emphasise the fact that smoking was entirely prohibited in the enteric wards, and that the prohibition was rigorously enforced. After a little experience I became suspicious of any pulse-rate over 70 during convalescence, and usually had the man's locker searched. In such cases it nearly always turned out that clandestine smoking had been indulged in, and the confiscation of tobacco was promptly followed by a fall in the pulse-rate. This small point is very important, because in any hospital where the restriction is not enforced the markedly slow pulse-rate will not be nearly so frequently found, and may escape notice altogether. As a rule, when the patients were allowed up out of bed their pulses returned to rates between 60 and 80.

Finally, no cardiac abnormality was ever found in conjunction with the very slow pulse-rate, except that in two cases a rhythmic irregularity was present. By this I mean that for a period of several beats the heart would be more rapid than the average rate as found by the watch, and that

CHART 4.



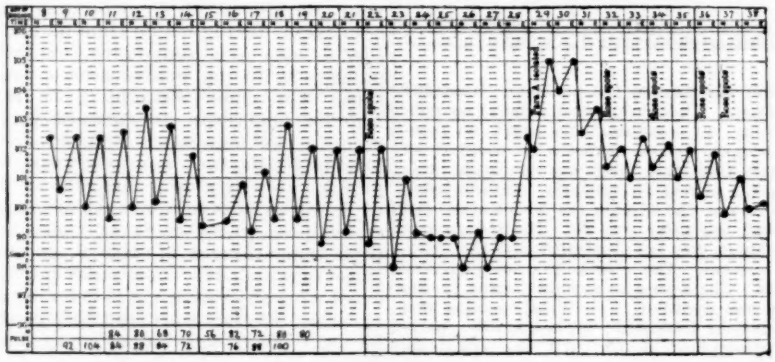
this would be followed by a period of more than ordinarily slow beats—a kind of Cheyne-Stokes rhythm of the heart (though individual beats were of the same force). No electrocardiograms were taken.

Pyrexia.—It will have been already gathered that the duration of the fever in these cases was often comparatively brief; in fact, in some cases pyrexia had already subsided before the patient's admission to hospital. In 22 out of the 47 cases pyrexia was either absent altogether or subsided within three days of admission, and in 9 more it lasted from four to seven days. Two-thirds of the patients, that is to say, had normal temperatures within a week of admission. In 8 cases the fever lasted more than one week and less than two, and in the remaining 8 it lasted more than two weeks. As a rule, the fever is much less of a continued type than in typhoid fever of the text-books; daily remissions or even complete intermissions are the rule, and a definitely continued pyrexia is rarely seen. Charts 4 and 5 show this feature well, and the latter shows also a relapse; both are from cases of unusually long duration.

Onset with pain in chest, abdomen, and legs. No headache, no vomiting, no diarrhœa, no cough. Slight sore-throat. Epistaxis on the fifth day; constipation was present from that day onwards. Admitted to hospital on the ninth day, with pain referred to the splenic region and tenderness with rigidity there; spleen not felt. No distension; reflex present. A few spots, not absolutely indubitable. Chest not abnormal. Tongue very dirty. For the next three days there were successive crops of quite definite rose spots, after which they disappeared, to be followed by two similar eruptions, each in repeated crops. On the twelfth day of the illness paratyphoid B was isolated from the fæces; the Widal was quite negative for all three bacilli. Throughout the fever there was severe pain in the legs and arms; movements of the wrists, elbows, knees, and ankles were painful, but there was no visible swelling of the joints, and the only objective sign was slight swelling of the femoral glands on both sides, which were tender to touch; they remained quite discrete, and no signs of suppuration developed. The patient had been inoculated once. (See Chart 4.)

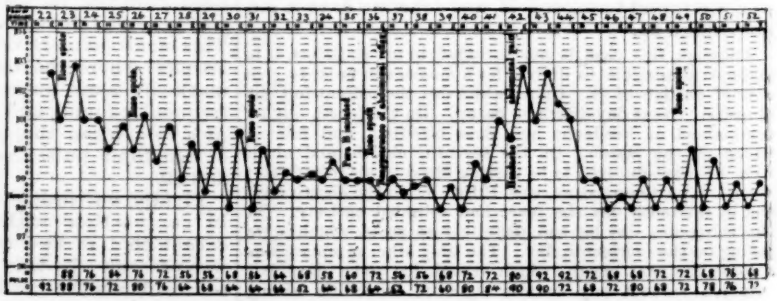
Onset with pain in the chest and toothache. No headache, no abdominal pain, no vomiting. Epistaxis twice, once in the first week and once in the second. No diarrhœa; no constipation; no cough; no sore-throat. On admission on the eighth day complained chiefly of shivering fits and malaise, with abdominal pain and headache. The abdominal reflex was present, and there was no distension. The spleen could not be felt. Spots appeared on the twenty-second day, and further crops appeared at intervals; when fully out the spots were of a large lenticular type—in the earlier stages they were the typical small rose spots. On the thirteenth day the Widal reaction was negative for paratyphoid A and paratyphoid B; for typhosus it was doubtfully positive (25). On the twenty-third day it was negative for typhosus, positive for paratyphoid A (100) and for paratyphoid B (25); on the thirty-second day it was positive for all three, typhosus (25), paratyphoid A (100), paratyphoid B (100). On the forty-first day the Widal reaction was positive for typhosus (100), paratyphoid A (300), and paratyphoid B (300). On the twenty-eighth day a relapse began, and on the next day paratyphoid A was isolated from the fæces. Diarrhœa, abdominal distension, absence of abdominal reflex, pain in the abdomen and legs were the principal features of the relapse. On the thirty-eighth day an ischio-rectal abscess appeared; this was opened, and paratyphoid A was cultivated from the pus. Convalescence was satisfactory. The blood was negative throughout, and the fæces had been examined with a negative result once before the isolation of the bacillus from them. The man had been inoculated twice, six months before he fell ill. (See Chart 5.)

CHART 5.



The degree of pyrexia is seldom extreme; it may reach 105°, but 101° or 102° is a more usual height. Defervescence is by lysis, practically always; this is seen on Charts 4 and 5, and especially well on Chart 6, another case in which a relapse took place.

CHART 6.



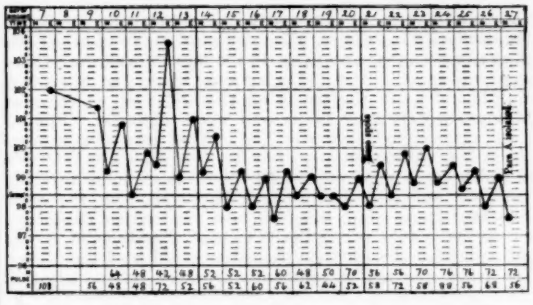
In this case diarrhœa lasting for 11 days, headache, and abdominal pain were the first symptoms; the latter two were still present on admission, three weeks after the onset. No cough, no nose bleeding. Sore throat about ten days after the original symptoms. The abdomen was not distended; reflex absent. Spleen not felt; no spots. Various crops of rose spots appeared after admission (see Chart 6). On the twenty-fifth day of illness the blood was negative and the Widal positive for all three organisms of the group: Typhosus (50), paratyphoid A (50), paratyphoid B (100). On the twenty-ninth day the urine and fæces were both negative. On the thirty-fifth day paratyphoid B was obtained from the fæces. On the thirty-ninth day the Widal reaction was again positive: Typhosus (100), paratyphoid A (50), paratyphoid B (100). The abdominal reflex reappeared on the thirty-sixth day, very sluggishly at first. The temperature had fallen almost to normal by the thirty-second day, but never got quite down to 98·4° F. On the fortieth day it began to rise again, and two days later the patient was quite ill, complaining chiefly of headache and abdominal pain. More rose spots appeared, including one later eruption not shown on the chart. During the relapse the abdominal reflex was not lost. On the forty-ninth day the Widal reaction was positive for the group: Typhosus (50), paratyphoid A (50), paratyphoid B (300).

The longest duration of pyrexia was in a patient from whose fæces paratyphoid B was isolated 26 days after admission, and a bacillus apparently typhosus but not agglutinated by standard serum three days after admission. In this case the fever lasted just over four weeks, and the man had been ill at least a week before admission. As usual with these paratyphoid patients, he was not nearly so "knocked out" afterwards as typhoid patients are, although his temperature had ranged from 103° to 105° for six days at the height of the fever; he convalesced very speedily. He had not been inoculated against typhoid fever.

Abdominal signs.—It has already been mentioned that abdominal pain, when present, is general, but more often complained of on the right side than the left. Tenderness and rigidity are almost unknown, save in those cases where the pain is chiefly referred to the splenic region, when some degree of resistance and rigidity there is not uncommon. The spleen can rarely be felt (twice in 47 cases), though percussion may indicate that it is moderately enlarged. Abdominal movement is always free, and distension is seldom present. The abdominal reflex was absent in 20 cases, though in several of these it returned during convalescence; sometimes, however, it remained absent up to the time the patients left hospital.

Rose spots are exceedingly common, and form one of the most definite and remarkable features of the disease. They are in some cases, when fully out, distinctly larger and more lenticular than those of the true typhoid fever, though in their earlier stages the same spots could be demonstrated clinically as the typical typhoid small rose spot. In other cases they do not reach this fuller development, but remain always of the typhoid type. Several successive eruptions were not infrequently seen at intervals of three to seven days: each separate eruption itself consisting of successive crops appearing over a period of 48 hours or so. The spots were most freely distributed on the abdomen and over the lower ribs: smaller numbers were to be found on the back; the limbs were not invaded, save for occasional spots on the thighs. It was not uncommon to find no rash until after the temperature had returned to normal; so that unless a careful daily watch is kept on convalescing patients, it is easy to miss a large percentage of the eruptions. As a rule, no disturbance of the temperature or pulse accompanied the eruptions, but in exceptional cases there were marked rises of temperature (to 101° or 102°), lasting for one or two days. No other symptoms were remarked in conjunction with the spots. In number the spots of each eruption varied greatly: sometimes half a dozen or so, sometimes as many as a hundred or more, would be visible. Occasionally it would be difficult in a newly admitted patient to decide whether a rose rash was or was not present on account of a multitude of parasitic lesions; no such patient has been credited with rose spots unless the nature of the eruption was, humanly speaking, beyond doubt. Out of the 47 patients, 28 had rose spots; 14 of these were observed to have one eruption (3 of these had doubtful second eruptions), 6 had two eruptions, 4 had three, 1 had four, and 3 had more than four. Chart 7 illustrates the appearance of rose spots some time after the disappearance of the primary fever, and just at the beginning of a slight relapse; it also illustrates the coexistence of pyrexia with very slow pulse.

CHART 7.

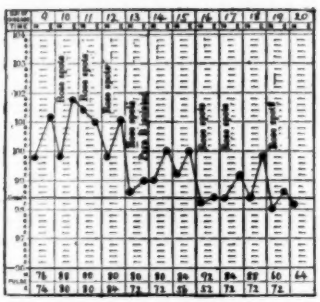


Six days before admission this man had sudden shivering fits with diarrhœa and abdominal pain; up to that he was feeling "better than ever in his life." On the next day he had pain in the neck and severe headache which got worse for some time, but disappeared before he came under observation. Cough began about the same time as the other symptoms, and was troublesome for some days after admission. Epistaxis took place in the train on the way to the base. On admission he looked ill; temperature was 102° F. and pulse 108. The tongue was a little furred. There were scattered signs of bronchitis all over the chest on both sides. There was no abdominal distension; the spleen was not felt, but there was a large area of splenic dullness. The abdominal reflex was absent. There were no spots. Two days after admission the Widal reaction was negative for paratyphoid A, positive for typhosus (50) and for paratyphoid B (25); the fæces and the blood were negative. On the fifteenth day after admission rose spots appeared for the first time; the spleen could just be felt; the abdominal reflex was still absent. Two days later the patient complained of malaise and abdominal pain, and had a furred tongue. On the twenty-fourth day after admission the abdominal reflex returned. The fæces were reported negative on the fourteenth and nineteenth days after admission; but paratyphoid A was obtained from them on the twenty-first day. The Widal reaction was positive for all three organisms of the group in dilution of 1 in 100 on the nineteenth day after admission (the twenty-fifth day of the disease), and ten days later it was positive for typhosus (100), paratyphoid A (300), and paratyphoid B (100).

Chart 8 is that of a man who was a "show" case. He had frequently recurring crops of typical rose spots, each crop numbering hundreds. He was seen by several officers in consultation, all of whom regarded the rash as a typical typhoid roseola.

This man on a certain day began to ache in the legs, back, head, and arms, and also to have cough and pain in the chest. These symptoms remained much the same up to his admission to hospital seven days later. He had no abdominal pain, no epistaxis, no shivers, no sore-throat, no diarrhœa, no constipation. On admission the tongue was slightly furred; temperature was normal, pulse-rate 80. The abdomen was not distended; the spleen was not felt. Abdominal reflex present. A few fading spots were present,

CHART 8.



not considered to be sufficiently typical to be characteristic. There was a loose cough, but no physical signs in the chest. Next day headache and pains in the legs were severe; there were no spots. The following day there was a profuse eruption of small rose spots on the abdomen, which after 24 hours became much larger and more lenticular. Similar eruptions, each consisting of hundreds of rose spots appearing in crops, came out every few days, separated by intervals in which not a spot was to be seen. After some days the headache and pain in the legs improved, but the arms became very painful; the pain was referred to the bones, not to the joints or to the muscles. Paratyphoid B was isolated from the fæces on the thirteenth day of the illness. The pulse was not exceptionally slow, but on one occasion it was only 56 at a time when the temperature was 100° F. It will be noticed that this man's history and symptoms were distinctly unlike anything enteric, but the rash and the pulse-temperature ratio, even without the bacteriological evidence, suffice to bring him into line with the other cases.

Inasmuch as some of these patients were removed from my observation when their convalescence was as yet in an early stage, it is probable that even higher percentages of rose spots would be obtained if it were possible to get all cases early and keep them all late. For the same reason the number of *relapses* seen is probably an under-estimate; eight patients of this series had them, one of whom had two if not three. (See Charts 5, 6, and 7.) As in true typhoid fever, it seems as if the old clinical "tip" holds good, that relapses do not occur in cases where the temperature comes down to normal or below it, without excursions above the normal line.

Complications.

The following complications were met with in the 47 cases. Purulent otitis media once; femoral thrombosis once; cystitis once (paratyphoid A was isolated from the urine); ischio-rectal abscess once (paratyphoid A was isolated from the pus of this abscess); jaundice once; enlarged gall-bladder without jaundice once. No case of bowel hæmorrhage took place, except as already mentioned, in two cases at an early stage of the illness. No case of perforation was encountered. Late complications and sequelæ, such as bone abscess for instance, would naturally not be met with in this series, because the patients were always transferred to England as soon as they were fit to travel. (As a matter of interest, I may add that a metastatic brain abscess was found post mortem in a case of paratyphoid fever before I took charge of the enteric wards: it has been reported.[1])

Diagnosis.

From a clinical standpoint it is natural to regard with the greatest possible suspicion a disease characterised mainly by headache, abdominal pain, cough, pyrexia, diarrhœa or constipation, nose-bleeding, and rose spots; on the other hand, the frequency of shiverings at the onset, and of a not very slow invasion, together with backache and pains in the legs, and of a very brief period of pyrexia, tend to divert such suspicion to alternative diagnoses. The most severe limb pains were seen in Cases 4 and 8, where there was prolonged pyrexia, and the diagnosis was really in no doubt: so that this symptom can hardly be reckoned as a point against the diagnosis of paratyphoid. Most of the cases came down from the front undiagnosed, and nearly all the rest were labelled "influenza," "trench fever," "bronchitis," "rheumatism," "appendicitis," "dysentery," or "pleurisy." I know of two cases (not in this series) in which the appendix was actually removed by operation for what was subsequently proved to be paratyphoid fever. One of these operations was done in a casualty clearing station, and one in a general hospital. The conjunction of pyrexia, right-sided abdominal pain, vomiting, and constipation might very easily occur, as will be seen from the foregoing analysis of symptoms, and so account for this error of diagnosis. One patient brought down with him a typical "enteric history," carefully written out by a medical officer at the front, and ending with the sentence, "Diagnosis: sub-acute gastritis with pyrexia, possibly complicated by appendicitis."

I do not attach any great diagnostic importance to the absence of the abdominal reflex, because it may be absent in all sorts of acute abdominal disorders; but it is of some use as an auxiliary sign of enteric, though it does not help to differentiate paratyphoid from typhoid. I am also in doubt whether a pulse-rate of 40–52 should be allowed any great weight in the diagnosis, though it is certainly a most strange phenomenon when seen in conjunction with a raised temperature, and its extraordinary frequency after defervescence is such a marked feature of the cases. More investigation of this point is required, and electro-cardiology might well be requisitioned for its elucidation. As with typhoid fever itself, no one symptom or sign of paratyphoid is pathognomonic; a combination of several is necessary, and a survey of the whole case is the only safe foundation for the diagnosis.

Bacteriological Findings.

The bacteriological diagnosis is very important. In the very mild and brief cases one hesitates to diagnose a fever of the enteric group without something more to go upon than the history, however definite that may seem. Moreover, there is no way of distinguishing paratyphoid A fever from paratyphoid B fever, so far as I know, except by laboratory investigations. It is especially noteworthy that one or two negative examinations of the blood or fæces do not exclude paratyphoid. Often the bacillus is not recovered from the fæces until the third or fourth week; and as many of the patients are by that time convalescent it comes about that in a great many cases in which the

[1] Scott and Johnson: THE LANCET, April 24th, 1915, p. 852.

diagnosis is thus confirmed the patient's temperature is already normal. Five or six negative examinations of the fæces are necessary before failure can be acknowledged, and even then it does not follow that the case is not one of paratyphoid fever. From the blood the organism is only isolable during the earliest stages of the illness, and but seldom even then. From the urine it is not usually recoverable unless there are definite urinary symptoms. For the purposes of this paper I have considered so far only those 47 cases in which the isolation of a paratyphosus placed the diagnosis beyond question. Many of the remaining 42 cases were just as definite clinically, and their Widal reactions left little doubt as to the diagnosis. Confining myself for the moment to the former group, in all of the 47 cases paratyphoid A or B was isolated from the fæces; in 2 of them from the urine also; in 1 case also from the pus of an ischio-rectal abscess; and in 1 case also from the blood.

For the following brief account of the methods of identification used I am indebted to Lieutenant D. Elder, R.A.M.C.: "To 10 c.c. of glucose-bile-salt broth was added ½ c.c. of blood drawn from a vein in the arm and incubated for 24 hours at 37° C. Any growth on this medium was plated on to MacConkey's lactose-bile-salt agar, whence a subculture was made on to the ordinary agar and incubated 24 hours. If Gram-negative bacilli were present, the culture on ordinary agar was put through MacConkey's bile-salt sugars for 24 hours. Fæces were diluted in normal saline and a loopful plated direct on to MacConkey's lactose-bile-salt agar. Any organisms thus identified were subjected to the Bordet-Durham agglutination test up to 1/2000, carried out with the subculture from ordinary agar." The complement fixation test was not carried out.

There remains the Widal reaction. The interpretation of the agglutination reactions of individuals believed to be suffering from infections of the enteric group, especially when they have previously been inoculated against typhoid fever, is perhaps best left to experts. I have purposely refrained from basing the definite diagnosis of any case (however clear it might seem clinically) on Widal reactions unsupported by actual cultivation of the pathogenic organism, not because I distrust the Widal reaction or the results it yielded in the hands of Lieutenant Acheson and Lieutenant Elder, but simply because I was anxious to stick rigidly to the principle of including in the series no case in which the organism had not been cultivated. As a matter of fact, the Widal findings were in the main in accord with the results of culture investigations. I do not propose to discuss here the exact interpretation of Widal results, but it may perhaps be well to quote Lieutenant Elder briefly on the method used. "The Widal reaction was carried out by the microscopic hanging-drop method with fresh 24-hour cultures of B. typhosus, B. paratyphosus A, and B. paratyphosus B ..... which have been in use for the last six months and have been tested every month by passing through the sugars and by the agglutination test with known sera; they have given at every examination clear, precise, exact, and definite reactions of each particular organism. It is to be noticed that the drop was hanging on a coverslip over a hollow ground slide, not between a coverglass and an ordinary slide. The dilutions were with normal saline made with distilled water." The agglutinating sera used in the Bordet-Durham reaction, it may be added, were supplied by the Lister Institute; each batch received and used was tested against known organisms, and gave exact, precise, and definite reactions with each individual organism.

Prognosis.

There was no death in the whole of the 47 cases; although several of the men were placed on the "seriously ill" list, not a single one reached what one would call a really critical condition. Such complications as occurred cleared up without any difficulty, so the prognosis can only be described as extremely good. I could not discern that either rose rash or the absence of the abdominal reflex were connected in any way with the duration of the fever or had any other prognostic significance.

Treatment.

To take prophylaxis first, 31 of these men had been inoculated twice within the previous 12 months, and 10 of them once; 2 had been inoculated, but not within the previous three years; 2 had never been inoculated at all. About the remaining 2 the notes do not give information, but one of them had had typhoid fever in India. As far as these figures go, they do not show that any marked protection is gained against paratyphoid infections from antityphoid inoculation; this is in accordance with the experience of others, I believe, and with the theory underlying protective vaccination.

In the wards where the patients were isolated the same thorough precautions were taken to prevent the spread of infection as in dealing with typhoid fever. I need not describe these precautions in detail, but I may perhaps add that no case occurred in any of the hospital staff, whether or not they had any connexion with the enteric wards.

Rest in bed is, of course, indicated during the pyrexial period and for some days afterwards. In the absence of any complication or of a severe initial attack I was accustomed to allow the men out of bed on the tenth or eleventh day of completely normal temperature. Diet during the fever was restricted to milk, barley water, and Benger's Food, given two-hourly, with occasional feeds of Lemco to avoid monotony as far as possible. A spoonful or two of tea to flavour the milk was allowed. The usual routine programme (modified, needless to say, for special cases) was to add jelly to the menu on the third day of completely normal temperature. Custard on the fourth, porridge and chocolate on the sixth, bread and butter and jam and tea on the seventh days were successively added. On the eighth day an egg, and on the ninth two eggs were ordered; about the eleventh or twelfth day chicken diet (less vegetables) was allowed; and in two or three more days ordinary full meat diet was reached.

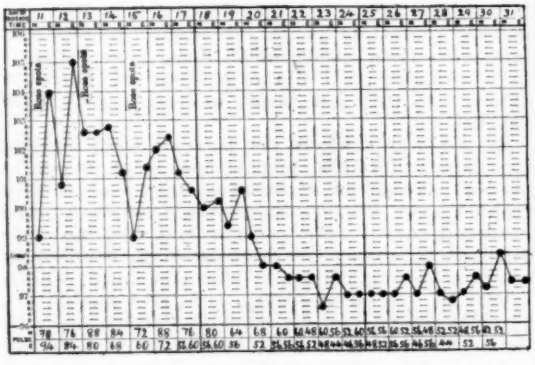
On admission, and for four or five days after the temperature reached normal, the bowels were opened by enemata every other morning; after that aperients were allowed instead. Stimulants were seldom necessary; only four or five patients had brandy, and that in most of the cases only for short periods. No intestinal antiseptics were given, nor any other drug intended to act upon the enteric ulcers or their causative organisms. Cough and bronchitis were treated on ordinary lines. Cystitis, which in true typhoid cases had yielded very satisfactorily to hexamethylene-tetramine, was more rebellious in the single case of paratyphoid infection: it could be controlled by this drug, but

reappeared as soon as the treatment was stopped. What eventually happened I do not know, as the patient was otherwise convalescent, and was transferred to England with a document warning the home authorities that his excretions contained paratyphoid bacilli.

Forty-two Paratyphoid Suspects.

Before I attempt to sum up the impressions which I gained from these cases, I will briefly analyse the 42 cases in which no micro-organism of the enteric group was isolated. A good many of these cases were, for military reasons, evacuated from hospital before there had been time to carry out repeated bacteriological investigations; and it is reasonable to suppose that, in a proportion of these, extended opportunities would have resulted in transfer to the list of cases definitely diagnosed by isolation of a paratyphoid organism. In a good many of these cases the Widal reactions were so definite that one could with a fair degree of confidence differentiate between paratyphoid A and paratyphoid B.

CHART 9.



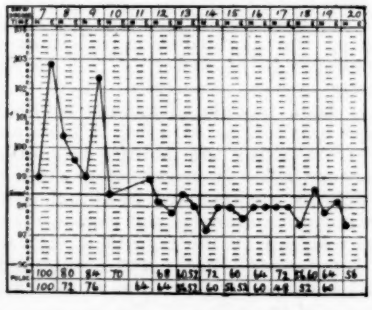
(On the twenty-sixth day there should be entered, "Reappearance of abdominal reflex.")

As a general rule, the pyrexial period was shorter than in the group already considered; no doubt because a longer pyrexia meant more opportunities for the bacteriological inquisition. In the same way it is not surprising to note that no relapses were observed among the 42; for relapses, too, presumably denoted a larger and more abiding bowel infection, and provided further opportunities for the cultivation of the bacilli. Speaking generally, the cases were indistinguishable as far as the history was concerned; epistaxis was the only sympton whose proportional occurrence was markedly different in the two series. Of the 42 cases, 39 had headache; 30 had abdominal pain; 12 had diarrhœa; 23 had constipation; 24 had cough; 8 had vomiting; 20 had shivers; 19 had pains in the limbs; 10 had sore-throat; 3 had epistaxis; 14 had pain in the back; 3 had (early) blood in the stools; 2 developed otorrhœa; 23 had absence of the abdominal reflex; 1 had palpable enlargement of the spleen; 22 had pulse-rates below 50, and 18 more below 60. Twenty in all had rose spots, of whom 8 had one eruption (in successive crops for the most part), 8 had two eruptions, 1 had three, 2 had four, and 1 had more than four. Twenty had been inoculated twice, 13 once; 3 had been inoculated, but not within two years; 3 had not been inoculated; of 3 I have no note respecting inoculation. No death occurred in the series.

A few selected cases from among this group may be quoted to illustrate the strong resemblance which they bear to the group in which a paratyphoid organism was actually isolated. Chart 9, for instance, is that of a rather severe case.

The patient complained of headache, abdominal pain, and cough, coming on gradually for ten days, and getting worse. There had also been some diarrhœa. The face was flushed and the man was sweating freely. There was no abdominal distension, nor could the spleen be felt. The abdominal reflex was absent. Several rose spots were present. Two days later the eruption was more plentiful, and was present on the back as well as on the abdomen. The patient was very drowsy and the pulse was very dicrotic. The blood was sterile, the Widal positive for both paratyphoid A and paratyphoid B in dilutions of 100, but negative for typhosus. On the fifth day after admission a fresh eruption of rose spots took place, and the temperature, which had fallen on the fourth day, rose again to 102·4° F. From this time onwards amelioration of all symptoms was seen and convalescence was rapid; defervescence was complete on the twentieth day (of the illness). A pulse-rate under 60 was charted for the first time on the seventeenth day (the temperature being still about 101°) and under 50 on the twenty-second day. The abdominal reflex reappeared on the twenty-sixth day. The fæces were reported not to contain any bacilli of the enteric group on the fourteenth, nineteenth, twenty-fourth, twenty-ninth, and thirty-second days. The urine was negative bacteriologically on the nineteenth day. On the twentieth day the blood serum clumped B. typhosus, 1 in 50; paratyphosus A, 1 in 50; paratyphosus B, 1 in 100. On the twenty-ninth day typhosus was clumped 1 in 50; paratyphosus A, 1 in 100; paratyphosus B, 1 in 25. These variable Widal readings leave it distinctly doubtful which the infecting organism was; but the "group reaction," taken with the clinical symptoms, makes it reasonably certain that the case was a paratyphoid fever of one or the other kind. This man had been inoculated once, eight months before the onset of his disease.

CHART 10.



As a contrast with this case (which though not the severest of the series was among the more severe ones) Chart 10 is instructive. The gap on this chart represents the interruption due to the train journey to the base; the pyrexial part of the chart is compiled from materials sent down with the patient. It will be noticed that after arrival at the base there was no pyrexia at all; in other words, had this patient arrived without any documents accompanying him, his temperature chart would show no excursions above the normal line at all.

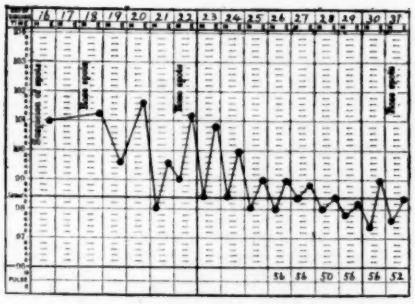
The history of this patient was that 11 days before admission he began to have pains in the head, abdomen, and legs, with cough, constipation, and shivers. On admission he complained of pain in the legs only. The abdomen was not distended and the spleen was not felt. The abdominal reflex was present throughout the case, and there were never any spots. The blood and fæces were negative. The Widal was positive for all three organisms

of the enteric group in the following dilutions: typhosus, 25; paratyphosus A, 50; paratyphosus B, 100. This, then, is a much less definite case which, but for the temperature record before arrival and the Widal reactions, one might hesitate to label paratyphoid at all. The man had been inoculated once, about seven months before admission.

The next case is interesting because the patient was the only one of a batch of 24 isolated on suspicion and studied very fully, in whom no paratyphoid bacillus could be isolated, yet the clinical history and the Widal findings make it morally certain that he, too, had a paratyphoid infection.

About two and a half weeks before admission headache and abdominal pain with vomiting and constipation came on. The headache persisted, but the other symptoms subsided. There was no cough and no nose-bleeding. About the date of admission pain in the neck and legs began. The abdomen was not distended, the spleen not felt. One or two suspicious-looking spots were seen in the right loin and groin. The abdominal reflex was absent. The knee-jerks were exaggerated, plantars normal, pupils equal, and their reactions normal. The Widal reaction was positive in the dilutions stated: typhosus, 25; paratyphosus A, 50; paratyphosus B, 25. Two days later there was a moderately plentiful crop of unmistakeable rose spots, and a faint abdominal reflex was elicited. Ten days after admission the Widal findings were: typhosus, 25; paratyphosus A, nil; paratyphosus B, 100. The fæces were reported negative.

CHART 11.



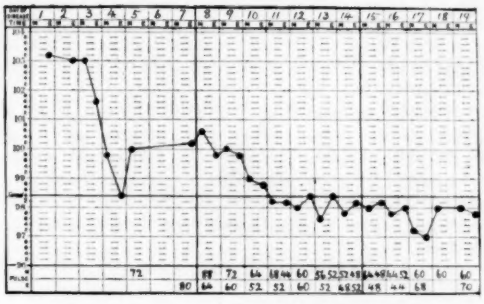
Two more eruptions came out, each spread over three or four days. The fæces were re-examined twice with negative result. Eighteen days after admission the Widal was: typhosus, 50; paratyphosus A, 50; paratyphosus B, 300. This man had not been inoculated.

The next chart (No. 12) is that of a man who had shared a dug-out in the trenches with one of the men from whom an organism (paratyphosus B) was actually isolated.

On the first day shown on the chart he was attacked by headache and shivers; he had also abdominal pain, with diarrhœa and blood lasting three days. He had a slight cough and a very slight sore-throat. There was no nose-bleeding. On admission a week later he complained of headache and abdominal pain. The abdomen was not distended, the spleen not felt; the abdominal reflex was throughout absent. There were no spots. The blood and fæces were examined with negative results. The Widal reaction was negative for paratyphosus A; positive for typhosus (1 in 25) and for paratyphosus B (1 in 50). The pulse-rate was thrice charted at 44 and four times at 48. The man had been inoculated three times, about seven months before his illness began.

In another case the patient complained on a certain day of headache, shivers, cough, and constipation. He had no abdominal pain, no sore-throat, no nose-bleeding. The headache got worse for five days; but four days later still on admission it was improving, though not quite gone. The temperature on admission was 99·4° F.; pulse-rate 68. The abdomen was not distended, the spleen not felt. The abdominal reflex was present, as were also several rose spots of the large lenticular type. Next day the temperature was normal and remained so. In the next 12 days he had three separate copious eruptions of typical rose spots, separated by intervals during which no spots were visible; these eruptions were seen by several medical officers, who were unanimous in their opinion that they were true rose spots. The blood and fæces were negative. The Widal reaction was negative

CHART 12.



for paratyphosus A, positive for typhosus and for paratyphosus B in dilutions of 100 each. The man had been twice inoculated 11 months previously. The pulse-rate was only once noted as low as 48, but on six occasions was charted at 54 and 56.

Conclusions.

Notwithstanding marked differences in the duration and severity of the symptoms in these 89 cases, the evidence suggests that they are (with two or three possible exceptions in the second group—those not diagnosed bacteriologically) manifestations of a definite clinical entity. If the reactions obtained on MacConkey's sugars and confirmed by the Bordet-Durham agglutination test are reliable evidence at all, then the bacteriological evidence is strong that this disease is paratyphoid fever, the two varieties of which are indistinguishable at present by purely clinical methods. That the symptoms and course of this disease, as seen in the British forces, are very much milder and more innocuous than those of typhoid fever, such as afflicted our armies in South Africa, is obvious. Confining myself to the 47 cases in which a paratyphoid organism was isolated from the fæces, blood, or urine, it seems safe to formulate the following summary of results.

Summary.

1. Paratyphoid fever (A and B) in the British Expeditionary Force is a disease much shorter and milder than typhoid fever, as met with in civilian practice and in the South African campaign.

2. Its onset may be gradual or moderately sudden.

3. Headache and abdominal pain are the most constant symptoms.

4. Shiverings at the onset; cough, pains in the limbs and back, diarrhœa, constipation, nose-bleeding are the next commonest symptoms; all these are met with in about 30 to 60 per cent. of cases. Vomiting at onset and sore-throat later are by no means rare.

5. Definite rose spots in successive crops are found in about 60 per cent. of cases. The abdominal reflex is absent in rather under 50 per cent.

6. The pulse-rate is extraordinarily slow, even more so than in typhoid fever.

7. Relapses of brief duration are not uncommon. Several complications occur more rarely and are the counterparts of those associated with typhoid fever.

8. The paratyphoid bacillus (A or B) is frequently isolable from the fæces, but in many cases not until after the symptoms have subsided; one negative finding should not be accepted as conclusive. It is also occasionally isolable from the blood, urine, and from metastatic abscesses.

9. Distinct help in diagnosis is obtainable from repeated quantitative Widal reactions, but much experience is required for their interpretation, and they must be read in conjunction with the clinical evidence and with the history of previous inoculation.

10. On the assumption that this disease is of the enteric group, the same precautions as in the case of true typhoid fever are indicated against its spread. In particular, carriers must be watched, for bacilli may be present in their urine and fæces after all symptoms of illness have subsided.

THE EXPLANATION OF A RECTO-URETHRAL ANOMALY, AND SOME POINTS IN NORMAL ANATOMY.

BY FREDERIC WOOD JONES, D.SC., M.B., B.S. LOND.,

PROFESSOR OF ANATOMY IN THE LONDON SCHOOL OF MEDICINE FOR WOMEN.

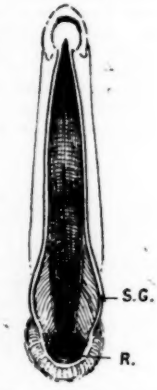
AMONG the many conditions of congenital malformation met with in connexion with the termination of the hind gut there is one which, though perhaps of but minor surgical importance, is nevertheless a most interesting anomaly that has never received any adequate explanation. That the hind gut may open into the urinary tract at various levels is, of course, well known; rectal openings into the prostatic urethra are almost the rule in cases of imperforate rectum. Various other recto-urethral communications occur in the two sexes, and all of these conditions are, I think, satisfactorily explained by appealing to the development of the terminal portion of the hind gut.

But the condition I am dealing with is in different case, for no described phase in rectal or urethral development throws any light upon the causation of the malformation. This anomaly is well known, is not very rare, and is described in most surgical text-books; briefly it is that in which the rectal orifice is carried forwards in the male perineum to open in the neighbourhood of the frænulum of the glans penis. Keith[1] has dealt with some of the factors underlying this condition and many clinicians have recorded cases of the malformation; yet I do not think that one may say that the ontogeny or the phylogeny of the anomaly has been explained. In attempting its explanation I have been guided by two facts: the first that there are other malformations obviously akin to this one, and the second that some points in the normal anatomy of the parts involved present more interest than is usually imagined. These two considerations are my excuse for publication.

In attempting any explanation it is necessary to go back to an early stage of human development, the stage when an ectodermal invagination—the cloaca or proctodeum—dimples the hind end of the embryo over the site of the termination of the endodermal internal visceral canals. From these endodermal canals the ectodermal cloaca is separated by the cloacal membrane, which, by the subsequent separation of the endodermal urogenital and rectal passages, becomes subdivided into a ventral urogenital membrane and a dorsal anal membrane. Within the ectodermal cloaca is developed the copulatory organ as a primarily bilateral thickening of its ventral wall. It is in the characters of this copulatory organ that the explanation of the development of this malformation must be sought.

It has often been noted that the embryonic stages of the human copulatory organ find a very exact parallel in the adult organ of the imbricated reptiles, such as the tortoises and turtles. This comparison is by no means a forced one, and the examination of the extremely large and well-marked cloacal structures of such a form as *Testudo elephantina* makes the interpretation of the minute and slightly marked human embryonic structures more easy. (Fig. 1.) The copulatory organ of this giant tortoise is composed of bilateral erectile thickenings of the ventral cloacal wall (corpora cavernosa); upon their free (dorsal) aspect are developed outstanding folds—seminal guides—having in their attached margins other erectile masses (corpora spongiosa). Between these two seminal guides runs a median groove—the seminal groove—converted into a closed seminal canal only during functional activity by the erection and meeting of the seminal guides. The seminal groove runs from the base of the glans to the opening of the urogenital sinus; the seminal guides also start at the same point on the distal extremity of the penis, but they run past the urogenital sinus orifice and strangely enough terminate within and around the sides of the rectal opening. It is for this reason that in comparative anatomy these folds are known as the *plicæ recto-urethrales*, but in the terminology of human development they are merely named the "inner genital folds." These inner genital folds of human embryology are something more than mere frills in the male tortoise, for they are functioning male sexual structures whose office is to close temporarily the seminal canal and so carry the sexual products to the top of the copulatory organ. Their office is exactly the same in man, and it is effected by their permanent closure during embryonic life. In the reptilian female these folds are functionless, and they are reduced; in the human female they are also in a rudimentary condition and appear as the labia minora.

FIG. 1.



The copulatory organ of *Testudo elephantina*, showing the seminal guides (S.G.) passing into the rectal orifice (R.). This is a normal human embryonic condition.

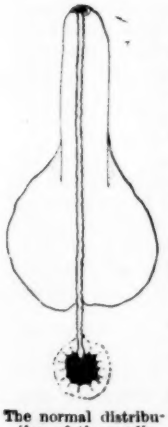
Now, in the human embryo, just as in the tortoise, these seminal guides or inner genital folds consist of two elements—a mass of cavernous erectile tissue and a free frill-like skin-covered edge. In the male the erectile tissue is represented by the whole of the corpus spongiosum which, extending backwards as the "bulb," abuts against the anterior margin of the terminal part of

[1] Malformations of the Hind End of the Body, Brit. Med. Jour., December, 1908.

the rectum. The free edges are represented, coalesced, in the median raphé, and the limits of this raphé present the greatest interest. In the male human embryo, just as in the male tortoise, the free edges of the seminal guides extend from the base of the glans, at the site of the frænulum, and pass backwards right into the anal margin. The adult raphé is present over the same area. It seems a most remarkable instance of conservatism that these folds should pass into the human anal orifice just as they do in the chelonian reptiles. In the human female the erectile masses of the seminal guides are rudimentary and variable in development, and they constitute the "bulbs of the vestibule." The free edges of the seminal guides form the labia minora, and these rudimentary structures are again very variable in development. Being functionless and rudimentary structures associated in the sexual complex it is but natural that their development should be inconstant, and the gynæcologist will see in this inconstancy the solution of the mystery that surrounds the presence and the basis of the fourchette.

I do not think it is very common for the labia minora to extend so far back as to meet quite definitely behind the vaginal orifice; it is certainly very abnormal for them to extend any further back than this point. This means that there is of necessity a very curious sexual distinction between the male and female anal orifice, for in the male purely sexual structures (the seminal guides) normally pass within its margin as the median raphé, whilst in the female this element is altogether absent. This point has apparently escaped the notice of anatomists, but it is an obvious normal detail of naked-eye anatomy and might conceivably have its appreciation extended some way beyond the limits of the anatomical laboratory. (Fig. 2.) Within the anal orifice of the male and upon its anterior aspect there is a definite ridge, which culminates at the skin margin as a papilla and then runs forwards as the median perineal raphé. In sections of the fœtal anus a shelf-like fold may be followed from this ridge around the margins of the anal orifice, this condition being exactly similar to that seen in the male *Testudo elephantina*. The shelf, the ridge, the papilla, and the raphé are all absent in the normal female.

FIG. 2.

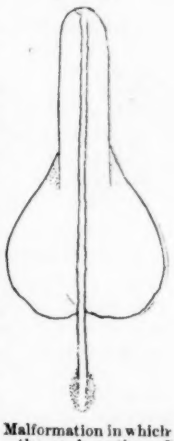


The normal distribution of the median raphé (coalesced seminal guides) in the male. Note the papilla marking the passage of the raphé into the anal margin.

In the normal male the seminal guides meet and fuse in the mid-line; the erectile masses by their mid-line union complete the penile urethra or seminal canal; the coalesced free folds constitute the median raphé. In the anomaly we are considering these masculine folds are possibly more than usually well developed, and the fusion not only affects that portion forming the normal medianraphé, but also that part which runs around the anal margin. The anus is thereby closed in and embraced in the raphé (just as it would be if the seminal guides of the male tortoise were to coalesce), and the anal orifice is carried forward in the raphé to its termination in the frænulum. (Fig. 3.) It may fall short of the frænulum and fistulous openings may be present anywhere in the normal extent of the raphé.

Another anomalous condition may arise obviously as a modification of the process described. The median raphé may be formed right across the anal membrane and the membrane may subsequently perforate upon both sides of the raphé, leaving it as a median band stretching across the anal orifice; this malformation is a well-known one.

FIG. 3.



Malformation in which the anal portion of the seminal guides has fused, obliterating the anus and carrying the rectal opening forwards in the raphé.

Since this backward extension of the seminal guides is typically a male peculiarity, it is obvious that this anomaly cannot be present with the external genitalia typical of the human female; and yet Keith was able to record six specimens of a female malformation which is obviously akin to it. These six cases resemble each other exactly; all of them are females, with a male type of external genitalia. All of them, we may be sure, though females in other respects, had the seminal guides abnormally developed, and the closing of these guides, after the fashion normal in the male, led to the closure of the anus and the prolongation of the rectal opening into the vulva and "penile" urethra. In the females of some monkeys the seminal guides (labia minora, normally coalesce and make a urethra in the clitoris; in these abnormal human females they have taken on a further and more masculine development and have embraced the anal orifice, just as they do in some abnormal males.

London School of Medicine for Women.

REMOVAL OF WARSAW UNIVERSITY MEDICAL CLASSES.—The request of the directors of the Warsaw University for the use of the Moscow University auditorium and clinic in the evenings for the Warsaw medical students, has been refused by the directors of the Moscow University on the ground that the latter is already overcharged with students. Therefore the Warsaw University authorities are looking for accommodation at Saratoff and Rostoff on the Don, at both of which accommodation has been offered to them.

THE RELIEF OF "ALIEN ENEMIES."—The third report of the Emergency Committee for the Assistance of Germans, Austrians, and Hungarians in Distress is a document of which the Religious Society of Friends, under whose auspices the committee was convened, may be proud. From the initiation of its work in August, 1914, up to June, 1915, over 3250 applications for grants towards maintenance have been investigated and the majority of the applicants helped with money or clothing. Much of the work of the committee has been done at the request of the Home Office, particularly where subsidiary travelling expenses or advice were necessary. There are now in this country over 30,000 civilian prisoners and a large number of military prisoners housed in 22 camps in different parts of the British Isles. For many of these persons generous grants of clothing have been made and materials supplied for handicraft and educational work. A very useful feature of the committee's work is the assistance which is given to British-born wives and alien children who require convalescent accommodation. The committee express their gratitude for the generous professional help of Dr. D. M. Barcroft, Dr. R. Fortescue Fox, Dr. J. Tylor Fox, and Dr. Sara E. White. Subscriptions should be sent to the secretary, Aliens' Relief Fund, 169, St. Stephen's House, Westminster Bridge, S.W.

ETIOLOGY AND PREVENTION OF CEREBRO-SPINAL FEVER.

BY HALLIDAY SUTHERLAND, M.D. EDIN.,
TEMPORARY SURGEON, ROYAL NAVY.

THE prevention of cerebro-spinal fever is based on one of the most powerful factors since the days of the Asclepieia in the practice of medicine, the *vis medicatrix naturæ*. Certain facts regarding epidemic cerebro-spinal meningitis have long been recognised. It arises under cold atmospheric conditions and disappears with the advent of warm weather. Overcrowding, bad sanitation, and privation are well known as predisposing causes. In the relationship between these circumstances will be found the key to the etiology of the disease and to a simple method of preventing it.

The Influence of Cold Weather on Conditions of Overcrowding, Bad Sanitation, and Privation.

When a number of people are living in a room the question of overcrowding, from the physiological as distinct from the legal standpoint, does not depend upon the number of persons, but upon the amount of ventilation. If the windows are open to fresh currents of moving air a larger number of people can inhabit the room without experiencing ill effects than if the windows were closed. A room with open windows may not be overcrowded, and yet the same room is very overcrowded when the windows are shut. Cold weather leads to closed windows and to shutting off the natural means of ventilation. Legal overcrowding is then certainly converted into physiological overcrowding. Any establishment not overcrowded has the potentiality of becoming overcrowded without any increase in the number of persons housed. In a modern battleship every sailor is allowed 80 cubic feet of space. As he is living within a steel enclosure artificial ventilation is essential, and fresh air, warmed in transit, is driven by powerful fans along air-trunks which open overhead. If the men feel cold and close up the air-trunks physiological overcrowding occurs rapidly. Provision for artificial ventilation in a barrack-room may be imperfect owing to structural defects or to the deliberate closing of ventilators. Under these conditions closed windows will lead to physiological overcrowding in spite of a certain movement of air through walls and fireplaces. The effects of cold on conditions of poverty are more marked. It is idle to advise fresh air so long as people are insufficiently clad in cold weather. If there be no fire in the room every crack in the windows is closed with paper or with rags, and the occupants huddle together, three, four, and five abed.

Cerebro-spinal fever arises from the successful invasion of the tissues by the meningococcus. There are therefore two factors concerned—(*a*) the virulence of the organism, and (*b*) the resistance of the tissues. Under the unhygienic conditions indicated above one factor favouring infection is already present. The vitality of the tissues has been reduced first by cold, which in itself may depress the nervous system to the extent of severe vaso-motor collapse; and, secondly, by warm stagnant air. Apart from the injurious influence of added chemical impurities, an atmosphere the temperature of which approximates to that of the body has been shown to increase the amount of blood in the peripheral circulation at the expense of the internal metabolism.

Whether such a condition of lowered vitality could excite pathogenic properties in an organism, sometimes present in the naso-pharynx as a harmless saprophyte, is a speculative point not essential to the present argument.

The Effect of Cold on the Diplococcus Meningitidis.

It is well known that the meningococcus will not grow at 72·2° F. At this temperature it soon dies. I found that meningococci in pure culture are killed in 30 minutes by a temperature of 62° F., a frequent temperature of the air in winter and in spring. Lower temperatures are more rapidly fatal. In general cold air is lethal to the organism. It is impossible for infection to be carried by cold air.

Physiological Overcrowding and the Meningococcus.

As a result of physiological overcrowding the air becomes warm, impure, and saturated with moisture. The temperature of confined air is raised by the natural heat of the body, and temperatures of 80° F. are not unusual. The meningococcus is present in the naso-pharyngeal secretion of patients during the incubation stage of the disease, and also in the throats of contacts. By the act of speaking or of coughing droplets of infected secretion will be expelled from the mouth. In a warm saturated atmosphere the life of the meningococcus outside the body is prolonged, and in this way air-borne infection may easily be carried from one individual to another.

The fact that persons sleeping to one side of a patient may be infected while those to the other side escape, rather points to infection carried by currents of warm moving air. Further, the number of contacts last spring found to be carriers of the disease ranged from about 40 to below 4 per cent. Differences in the methods of investigation cannot entirely explain this variation. The published reports indicate the significant fact that the highest percentages of carriers have always been associated with conditions favourable to physiological overcrowding.

The Vicious Circle.

In cold weather overcrowded communities are attacked by cerebro-spinal fever. The meningococcus itself is easily killed by cold, and the disease is unknown in Arctic regions. Man, by protecting himself against cold in an unphysiological manner, has produced the ideal conditions for the growth and spread of the malady.

The Remedy.

The prevention of this disease is simple. In dormitories or in day-rooms where men are congregated the windows should be open day and night. The greater the legal overcrowding the more thorough should be the natural means of ventilation. If a strong wind be blowing against the windows on one side of the room it may be necessary to close them. In that case a board 6 inches deep should be fitted beneath the sash of all exposed windows. A better plan is to have a weather-board fixed outside the window at an angle of 45 degrees. This ensures that the windows may be kept open 3 feet at the bottom in all weather conditions.

Hundreds of men and women live through a British winter beside open windows, and there are many who pass this season entirely out of doors. Among these people even colds in the head are

unknown. They avoid draughts, with which free ventilation is not to be confused. A draught is a current of air, differing from the surrounding atmosphere in temperature and in velocity to such a degree that a sensation of chill is produced in an individual exposed to it. Thus a person between a fire and an open window is in a draught, but one among equable currents of moving air is not in a draught. In any case the people to whom this paragraph refers are "delicate consumptives"; it is unlikely that measures beneficial to them would prove too severe for those in perfect health.

With an unlimited supply of fresh air during the winter months cold is to be guarded against. Injurious results of cold are to be found in a depressed circulation, in impaired digestion, in disturbed sleep, and in reduced metabolism. These undesirable effects predispose to other ailments. Nature intended that man should protect himself against cold by suitable clothing, by woollen underwear, thick socks, fur-lined gloves, warm blankets, sleeping stockings, and, if necessary, by hot-water bottles. All these will cost money. The money so expended would soon be saved in coal and in the expense of controlling so serious a disease as cerebro-spinal fever.

One other point demands special provision. All clothing must be dry, as damp garments draw heat from the body. Special rooms should be provided for drying wet clothes and boots at any time. All the evils of overcrowding are present when wet clothes are allowed to dry in a sleeping-room, the heat being generated by the bodies of the occupants in close, confined air.

A more generous acceptance of these aspects in the physiological life would mean not only the eradication of cerebro-spinal meningitis, but also a gain in the physique and efficiency of His Majesty's forces and of the civil population.

A SERIES OF CASES OF TRANSIENT APHASIA, HEMIPLEGIA, AND HEMIPARESIS DUE TO ARTERIAL SPASM.

BY J. GORDON SHARP, M.D. EDIN.

THE following notes of cases observed for a considerable period—most of them for years—illustrate types of aphasia, monoplegia, hemiplegia, or hemiparesis, which were for long not clearly recognised. They are neither embolic, hæmorrhagic, nor thrombotic in origin, but depend on a temporary spasm of the middle cerebral artery or its branches. The condition is generally met with in those who have passed middle life—that is, when the arteries have become "chalky." For a like reason it is common in those who are the subjects of a well-marked arterio-sclerosis. The late G. A. Gibson called special attention to the circumstance that spasm of the muscular coat is liable to take place in sclerosed vessels; but arterio-sclerosis does not alone account for the spasm, because young subjects and the possessors of soft resilient vessels may be sufferers, as one at least of the cases shows. It is likewise not always associated with a high systolic blood pressure, as one or more of the cases prove. Passion and emotion may at least be exciting causes, and so may toxins circulating in the blood Two of my patients were the subjects of life-long migraine of a severe type, and one of these had a high systolic pressure and the other not. Another case was the subject of chronic Bright's disease, and in all three the attacks of aphasia, hemiplegia, and hemiparesis were evidently clearly connected with the diseases from which they originally suffered.

Why are the cerebral arteries attacked? This circumstance is often commented upon, seeing that at most the cerebral vessels have but a rudimentary vaso-motor nerve-supply. A poison can act on a cell which has no demonstrable nerve-supply; and a collection of cells can be similarly acted upon, so that the possession or not of a nerve-supply makes little difference. Another question often discussed is, Why is the middle cerebral artery specially picked out? Is it marked out for attack more often than others of the cerebral vessels? It is not, but the results are more evident. An aphasia or a monoplegia or a hemiplegia is more readily observed and causes greater inconvenience than a disturbance of hearing or sight, or than a lapse of memory. Hence the error.

It has been said that in the transient hemiplegia now under discussion *extensor plantar reflex* does *not* occur. This is not my experience, for I have often demonstrated its presence.

History.—Nearly 30 years ago (1886) Peabody, Daly, and Bastian all recognised spasm of cerebral arteries. Peabody associated it with arterio-sclerosis; Daly believed that gout and kidney troubles might cause the condition, while Bastian offered the suggestion that poisons circulating in the blood could cause temporary arterial spasm. This is probably the true explanation. The poison of gout, kidney disease, migraine, of arterio-sclerosis, of a fit of passion or emotion, acting on susceptible vessels, induces the spasm; and it must be admitted that sclerosed vessels are especially liable to spasm. While the condition was recognised by a few nearly 30 years ago it is only within the past 15 years that the knowledge has become common property, and chiefly by the writings of Clifford Allbutt, Osler, W. Russell, Savill, Gibson, Lundie, and others.

Treatment.—This may be divided into (1) preventive and (2) immediate; and the first is obviously the more important. Alcohol, tobacco, excitement, and vitiated atmospheres are certainly determining causes in those liable, whether or not they be the subjects of arterio-sclerosis; therefore they are to be avoided. Baths, hot, cold, or medicated, and the liberal use of cold water internally are useful, for they help to keep clear two important excretory channels. The liberal use of purgatives is indicated, especially of the saline variety. (The old-fashioned mistura alba does well.) In many cases the occasional addition of five grains of potassium iodide to the mixture three times a day, and continued for a week or two at a time, may be employed. Where the systolic tension is high one or two grains of sodium nitrite may be given three times a day along with the purgative and continued for a week or two, for seizures sometimes run a course of rise, fall, and decline, and the course can be cut short by appropriate treatment. Attention to diet is necessary, and it is wise to cut down meat, and in fact all animal protein, and particularly in those beyond middle life. It has been conclusively proved that the urine of large meat-eaters (W. E. Dixon) contains a relatively large amount of a body which very markedly raises the blood pressure when injected into animals, and raising of the blood pressure is a disturbing element to be avoided.

The treatment of the immediate attack is simply a modification of the preventive treatment. An important feature of the treatment of an actual attack is to recognise its true nature—that it is a transient aphasia, or hemiplegia or monoplegia as the case may be.

CASE 1. *Sensory or intellectual aphasia without mind blindness in a man aged 65.*—In April, 1897, I saw a retired tradesman, aged 65, who rose one morning and dressed himself as usual, but was quite unable to understand what his daughter said to him, and when he tried to speak was unable to articulate intelligibly. When addressed he could answer nothing more or less than "Yes" or "No," and he often used "yes" when it was plain enough that he meant "no." He could to all appearances understand printed language, for he spent the usual length of time over his newspaper. Next day he did not understand printed matter, for he looked at the newspaper frequently, and after a few seconds' attention to it laid it aside with impatience as if he did not see the words. When I saw him I wrote in large printed characters the words, "Have you any pain?" but he did not understand their meaning. In 96 hours after the onset he could read, and 24 hours later he understood what was said to him, but could not pronounce words of more than two syllables. He gradually improved, and by the end of a week it was only now and then that he had difficulty in articulating. For example, he said in speaking of a former vicar of Leeds, "He was a great," but not finding the word or failing to "get it out" for a few seconds, till at last he syllabilised the word "theologian." In four weeks all symptoms had passed off.

Neither albumin nor sugar was ever present in the urine, and the heart was free from murmurs, and the pulse showed no intermittency or irregularity. The arteries were somewhat sclerosed. The reflexes were normal. In the process of getting well it appears that the faculty of reading written language first recovered, then that of understanding spoken language, and last of all that the motor speech apparatus recovered.

The depth of the aphasic condition may be gathered from the following analysis: 1. When he was asked the simplest questions he could not understand; therefore he could not hear and thus suffered from *auditory aphasia* or *word deafness*. 2. He could not read nor see the simplest written or printed words; therefore had *alexia* or *visual aphasia*. 3. He could not speak voluntarily, nor repeat words nor read aloud, and had *aphemia* or *motor aphasia*. 4. He could not write voluntarily, nor write to dictation, nor could he copy writing, and suffered from *agraphia;* but he did not evidently suffer from *mind* blindness, for he knew the use of a newspaper, pen, or other object.

There was thus to all appearances an almost *total* aphasia both motor and sensory, and due to a temporary closing of branches of the middle cerebral artery. The twigs supplying Broca's or the third left frontal convolution would account for the motor aphasia, while the closing of the twigs supplying the angular gyrus and the supramarginal lobule would cause the visual phase of sensory aphasia. The transient cutting off of the branches to the first and second temporal convolutions would give rise to the auditory phase. The angular gyrus and supramarginal lobule were evidently not extensively disturbed in their blood-supply, else in addition to the visual aphasia there would have been *mind blindness* present. It will be remembered that when the patient got over his sensory aphasia, and when his intellect was quite clear there still remained for a time a certain amount of "difficulty of utterance" or anarthria.

Marie would probably say that the case whose history has just been recited was simply one of true or Wernicke's aphasia, with the addition of an anarthria or difficulty of utterance due to a transient closing of arteries in the neighbourhood of the lenticular nucleus, for he denies the existence of motor or Broca's aphasia.

In 1900 (three years later) the patient had another attack, only not so profound nor so long-continued as the one just recorded. One year after this, and aged 69, he died from pneumonia and commencing gangrene of the foot due to the extending arterio-sclerosis. The man, although never actually drunk, sat, smoked, read, and sipped beer all day long for years.

CASE 2. *Right-sided paresis with difficult articulation in a man aged 36; political excitement.*—The patient, an iron-worker by trade, aged 36, was rather intemperate, smoked heavily, and spent a large part of his spare time in the atmosphere of clubs. In 1907 he was suddenly seized while in the midst of a political argument with loss of power in the right arm. At the time he had his hammer in his right hand and it dropped down. His leg gave way and he had to take a seat by the side of his bench. He tried to speak, but words failed him, although he knew what he wanted to say, and was all the time quite conscious. At the end of half an hour he was able to walk and to lift his arm, but quite unable to continue his work. Both leg and arm had a "prickly" feeling. Speech was "thick."

At the end of three days I saw him. There was at this time great difficulty of utterance and speech continued to be "thick" for two or three days. The deep reflexes (knee-jerks) were perhaps exaggerated on the right side. There was no heart lesion and the urine contained no albumin. His arteries were perhaps a little more thickened than one looked for in a man of his years. Unfortunately, his blood pressure was not taken on account of the sphygmomanometer being out on loan. The man got such a fright that he altered his whole course of living, and up to 1912 he had no further attack.

Alcohol, tobacco, and excitement may have had something to do with the causal agency.

CASE 3. *Right-sided paresis with aphasia; many attacks; hysterical woman aged 25.*—The patient, a married woman aged 25, at the time without children, was in 1901 suddenly attacked with numbness, tingling, and paresis down the right half of the head, including the tongue, and this was accompanied by inability to articulate clearly. The attack lasted half an hour and caused the patient great alarm. When she was 27, and shortly after the birth of her first child, she had a second attack; and when she was 31 she had a third, and this, like the second, occurred some time after the birth of a child. A fourth attack took place in 1908, when she was 32, and was more widespread, affecting, in addition to the face, tongue, and so on, the arm and leg, and producing loss of power and numbness on the right side. Speech was "thick" as in the other seizures. This time the loss of power, tingling, and numbness lasted for nearly a week.

When the attack was at its height I had an opportunity of examining the patient. There was nothing abnormal in the heart and circulation. The urine was free from albumin. The knee-jerks were decidedly exaggerated on the right or affected side, and numbness was complained of on the same side. One important point needs to be mentioned—namely, that the woman was highly emotional and subject to fits of passion, and all the seizures appear to have had some relationship to an outburst of temper. She was warned on this point and told that there was no lesion of an organic character to account for the attacks. The responsibilities of family life have probably had a salutary effect on her conduct, for she has not had an attack since 1908.

CASE 4. *Right-sided hemiplegia with aphasia; many attacks; life-long migraine; woman aged 69.*—In February, 1903, I saw a widow, aged 69, in well-to-do circumstances, who had never been pregnant and who from her earliest years had been the subject of severe migraine. Her friends believed she had had an apoplectic seizure, and the symptoms pointed to it. The knee-jerks on the right side were exaggerated and the plantar reflex was extensor in type. Speech was thick and, the right arm and leg could not be moved. She was well purged, and next day she could move the limbs, and day by day movement became freer.

At the end of one week there only remained weakness and great "heaviness" of the arm and leg. Speech was still hesitating. The urine was free from albumin.

In October, 1904, she felt as if another attack was coming on, but by purging she believed she had averted it. She was ill again in September, 1906, and this time she complained of numbness over the left side of the head with a weak and prickly feeling down the whole right side of the body from the shoulder. Speech was confused, and the grasp on the same side was feeble. The urine was repeatedly examined for albumin, but with a negative result. The heart was normal, and the arteries did not appear to the finger to be hard beyond what might be expected at 72. There was a considerable degree of nausea. Purging was again tried, but the patient did not recover so rapidly as before. The difficulty in speech remained, and so did the paresis of the arm and leg, and with these an uncomfortable pricking sensation in the right arm. In the course of the illness she developed one of her bilious attacks, from which she had suffered for over 60 years. She said that in all these years seldom a fortnight had passed without her having an attack. In a month from the onset the woman was again able to be out of doors, for despite her years she was as active as a woman of 45. It was, however, 12 months before she regained her usual power in the right arm and leg.

She remained well till April, 1909, and in this interval had not had a real bilious bout. One evening she felt that she was going to be bilious and went to bed earlier than usual. She had at this time staying with her a daughter who had not seen her mother in the paretic and aphasiac seizures. This daughter, feeling rather uneasy about her mother, went to the bedroom, and on asking how she felt found that the old lady could not speak and was difficult to rouse. I saw the patient soon after and found that speech was so inarticulate that I could not understand its meaning. The right arm and leg were completely helpless, the right side of the face was flaccid, the knee-jerks were exaggerated on the same side, and the plantar reflex was extensor in type. She was very drowsy but could be roused, and when addressed was intelligent, although the difficulty in articulation prevented one understanding what she wished to say. No albumin was present in the urine. I this time thought I had to do with a true hæmorrhage, but I was mistaken, for with purging and low diet she rapidly improved, and in four weeks was able to walk out of doors.

From April, 1909, to June, 1911, she enjoyed good health for her time of life and was able to be out every day. Occasionally she had a bilious turn. In June, 1911, she had "prickling" in the arm and leg of the right side, but purging cleared things up. After this attack she developed other symptoms in the shape of drowsiness, and loss of memory, and these gradually increased, and she died on July 28th, 1911, aged 76.

Had the migraine anything to do with the attacks? Several blood-pressure records were taken, but unfortunately these have been lost. As far as my memory serves me, the systolic pressure was never higher than 140.

CASE 5. *Right-sided hemiplegia, aphasia, numbness; each attack ushered in by passage of smoky urine; man aged 63.*—In March, 1903, a business man, aged 63, was found to have "smoky" urine, headaches, hard pulse, and nausea. The urine reacted to the tests for blood. Rest in bed with appropriate diet, purgatives, and total abstinence from alcohol apparently "cured" him.

In July, 1904, he was seen in my absence by a fellow practitioner, who found that he had been seized on getting out of bed with loss of power in the right arm and leg, thickness of speech, but without loss of consciousness. Great complaint was made of numbness in the upper extremity, and more particularly of the hand and fingers, and this troublesome symptom never left him for the remainder of his life, some four years later. The diagnosis made by the practitioner was one of mild apoplexy. The patient soon recovered save for the numbness.

In October, 1904, he was attacked in much the same manner, and he was soon able to be about again, although he trailed the leg a trifle for some weeks, and speech was not quite clear for a like period. It was now observed that when he was going to be ill the urine always became "smoky." At this period he, with my consent, consulted a medical man who was a friend of both of us, and he came to the conclusion that there had been some slight cerebral hæmorrhage affecting the vessels in the area presiding over the movements of the arm, leg, and tongue, and to all of us this appeared to be a sensible diagnosis.

Between October, 1904, and March, 1905, the man had several attacks which did not even confine him to bed. At no time were there any convulsions. His speech was always "thick" for some time afterwards. He was never at a loss for a word, nor did he ever at any time in the course of his illnesses have any difficulty in understanding what was said to him, nor in comprehending facts, figures, and legal questions which came up in the course of his business. It seemed rather that the mechanism of speech worked clumsily.

At the end of March, 1905, he had rather a severe attack which lasted for four weeks—that is, before the dragging of the leg, the difficulty of articulating, and the clumsy movements of the hand (as shown by the difficulty of writing) had passed off. From this time till October, 1905, when he left Leeds, he remained practically well saving for the already mentioned painful numbness of the right arm, hand, and fingers. I heard of him from time to time after he settled in his new home. He had one seizure, which so much frightened all his attendants that they telegraphed to his son and daughters to come at once, for their father had had a "stroke." They hastened to their father's bedside fearing the worst; but when they arrived they were agreeably surprised to find him sitting up in bed eating his breakfast. It was one of his usual illnesses, from which he made a rapid recovery and he lived for about two more years, being finally cut off by the advancing kidney trouble.

One or two points are worthy of emphasis: 1. The attacks were always ushered in by the passage of blood containing urine and casts. 2. There was no mental defect. 3. There were no convulsions. 4. There was never any loss of consciousness. 5. The right knee-jerk was brisker than on the left side, and the plantar response was extensor on the same side. 6. The long lasting numbness of the right upper extremity which no remedy relieved. 7. The systolic arterial tension was 160 by the Riva-Rocci instrument.

Marie would probably call the seizures by the names of anarthria with hemiplegia. As to the immediate cause of the seizures, were they uræmic? This seems probable, for every attack coincided with acute kidney trouble as evidenced by the urine.

CASE 6. *Right-sided paresis; difficult articulation; life-long migraine; systolic pressure 205; man aged 66.*—A carman all his life had suffered from periodic attacks of severe migraine. These usually started with pain over the eyes, and this was aggravated by anything that caused pressure, such as the wearing of a hard hat. Often he was so ill that he had to lie up for days, much to the detriment of his business. The attacks came on every two or three weeks and appeared to yield to no remedy, for almost everything had been tried—drugs, rest, diet. Sometimes he had no warning notice of an attack.

On Jan. 7th, 1911, he was in his stable attending to his horses when he was suddenly seized with loss of power in the right arm, leg, and face, accompanied by coldness and numbness in these parts. He was unable to cry out or to speak, and had to sit down or lie down till someone came. There was no loss of consciousness. He was helped into the house and upstairs to bed. It was observed by his wife that he could not exactly tell what had happened owing to the slowness with which he spoke and owing to the "thickness" of his speech.

When I saw him there was distinct loss of power in the leg and arm on the right side, but I could discover no difference on the two sides of the face, although the patient complained of numbness on the right side, and there were perhaps some signs of impairment of sensation. The heart was normal and the urine was free from albumin. The arteries were hard and the systolic arterial pressure registered 205 by the Riva-Rocci instrument. The knee-jerks were difficult to elicit on both sides. He improved day by day. On the eleventh day he had a bilious bout and he improved rapidly after this, and on the fifteenth day he was so much better that he was able to get up and on the twenty-fourth he got out and did some work.

I saw him from time to time and learnt that he had his headaches and biliousnesses, although not so frequent as formerly. He was able to do his work, although not so comfortably as before his illness. He had no traces of the hemiplegia, such as trailing of the leg, no difficulty of speech, and so on. In fact, he had completely recovered, except for weakness, as he expressed it.

On August 27th, 1911, he was sitting in his chair after he had finished his day's work, when he said to his wife that he felt ill, and expired almost immediately.

CASE 7. *Severe aphasia; slight paresis of left arm and leg; anginal attack; man aged 64.*—A literary man, aged 64, had been working very hard during the warm summer of 1911, and one afternoon in August, when he had nearly finished his day's round and was about to send a telegram concerning his manuscript, he suddenly discovered that he was unable to fill in the telegram form, and he was unable to tell his son what to do on account of the difficulty of expressing his wishes in words. He knew what he wanted to say, but he could not "find" the right words, and what words he did utter were so "thick and slurring" that his son could find no meaning in them.

I saw him soon afterwards and found his heart beating at 120, with a beat dropped out here and there. The aphasic condition was as just stated. The urine contained no albumin and no sugar. He was sent to bed and kept on low diet and well purged, with the result that he was able to get up in a week or less and out in ten days. I had known the man 18 years and recognised that his head was shaky and so was his right hand, and that his speech was a trifle syllabic, and that the spittle now and then could be seen at the corners of the mouth. Two days after the attack I took his systolic pressure and found it 140–145 by the Riva-Rocci manometer. It was at no time higher than this, as I proved by many trials later. He soon got well and able to resume his literary work.

In February, 1912, he had another attack. This time the aphasia was not so severe, all that was noticeable being thickness and slurring of speech, but he lost power in the left arm and leg and complained of numbness in the same. He was again sent to bed and treated as before, and in 24 hours he was able to get out of bed and to walk round the bedstead. He was soon well again, and remained so till January, 1913, when he had a typical anginal attack as he was leaving the theatre one evening, and had to be taken home in a cab. I saw him as soon as he got to his own house, when I found him suffering from all the after-symptoms of an attack of true angina. I administered a large dose of spirit of nitrous ether and a quarter of a grain of morphine hydrochloride by the mouth. He slept well, and next morning was convalescent. He was kept in bed for four days and given 1½ grains of sodium nitrite in mixture form three times a day, and in less than a week he was himself again.

This case is interesting from the association of true angina with transient aphasia and paresis—spasm of branches of the middle cerebral artery in the first two attacks, and of the coronary arteries in the third attack.

As to the cause, remote and immediate, this patient has a gouty family history, and he himself has suffered from acute gout. He is a heavy smoker, having smoked from four to six ounces of strong tobacco a week for many years, besides untold cigars. Alcohol he has used rather freely in former years. He was warned against this excessive use of tobacco and he has always for a time cut it down, and he associates his two last attacks with a return to his old habit, and there may be something in this.

Leeds.

BRISTOL GENERAL HOSPITAL.—Mr. Fenwick Richards, a member of the house committee, has defrayed the cost of the erection of a chapel, which he has presented to the Bristol General Hospital, and this was opened with a special service on Oct. 8th, the sermon being preached by the vicar of Redcliffe, the Rev. J. N. Bateman Champain. The chapel is in the Renaissance style and provides seating accommodation for 100 persons.

LABOUR COMPLICATED BY ECLAMPSIA AND GLYCOSURIA; CÆSAREAN SECTION; RECOVERY.

BY C. PERCIVAL WHITE, M.B., B.C. CANTAB., M.R.C.S.

With Remarks on the Case by JOHN PHILLIPS, M.D.Cantab., F.R.C.P. Lond.

THE patient, aged 24 years, a primigravida, was married in November, 1911; she was always a delicate girl. She became pregnant on or about Feb. 18th, 1912. On June 12th, while pregnant, she had an attack of appendicitis, and immediately the quiescent stage was reached operation was performed. Ten days later, when almost convalescent, she was found to have hæmaturia, but examination revealed no blood casts or infection by bacterium coli. The urine, however, contained a trace of sugar, beside blood: the diacetic acid test was negative. The only abnormal physical sign found was a hæmic murmur over the pulmonary base; this appeared, however, to be the ordinary murmur occurring in many pregnant women. The hæmaturia cleared up about six weeks after operation; a small amount of sugar was, however, present, but no diacetic acid.

On Oct. 10th an examination of the urine revealed 27 gr. of sugar to the ounce; this was treated by a strict diabetic diet, with the result that in eight days the amount of sugar had fallen to *nil*, but acetone and diacetic acid appeared in large amounts. Glucose was administered and the acetone almost immediately disappeared, but the sugar again rose to 20 gr. to the ounce. Her pelvic measurements were generally small, and a conical cervix was present. On Oct. 23rd the head could just be pushed into the brim, and Dr. John Phillips, who saw her in consultation, introduced two bougies after necessary dilatation under an anæsthetic (ether being used), to induce labour at the thirty-fifth to the thirty-sixth week of pregnancy. The same afternoon the patient complained of headache. The next day, at 2 A.M., the headache increased and she became restless, and at 3 A.M. she had an attack of eclampsia, starting on the left side of the face; this was followed by two similar attacks at intervals of half an hour. The fits were controlled by a little chloroform, and a saline solution was administered per rectum. At 5.30 A.M. Dr. Phillips performed Cæsarean section, under open ether anæsthesia, and a healthy male infant, weighing 6 lb., was delivered; the placenta and membranes were quite healthy. Two quarts of saline solution were run into the peritoneal cavity before closing the wound; omnopon, ⅓ gr., was administered.

At the time of the operation the urine drawn off by catheter contained a trace of albumin only, with a slight amount of sugar. Later in the morning the patient had a recurrence of the fits, six attacks taking place during the 12 hours. Between the convulsions she was comatose, with contracted pupils. As the omnopon and salines failed, 40 gr. of bromide of ammonium and continuous salines were given per rectum. An attempt to give her a hot pack was frustrated by the restlessness of the patient. The next day the fits returned and the face and neck gradually became more œdematous. A drop of croton oil was administered in the morning, which resulted in six large motions during the evening and night. On Oct. 26th—that is, four days after the onset—the patient showed

signs of returning consciousness, and in the afternoon she was able to swallow; spoon-feeds of albumin water and brandy, and later on 10 per cent. glucose, with meat juice (an ounce), were given hourly.

On Oct. 27th the patient had a good night, but incontinence of urine and fæces continued. The wound was dressed and found to be healing rapidly; involution of the uterus was normal. The next day a catheter specimen of the urine was found to contain 4·5 gr. of sugar to the ounce, with a faint trace of acetone and diacetic acid; the urea was normal. She gradually improved until, on Nov. 1st, the mind was apparently normal, except for loss of memory of events for the preceding month. The sutures were removed on the tenth day and the wound was found to be completely healed; the urine contained 3·9 gr. of sugar per ounce, but diacetic acid was not detected. Three days later the sugar also had disappeared.

On Nov. 9th, although the patient was apparently improving, the amount of sugar had gone up to 14 gr. and a week later to 18 gr. to the ounce. Since this date she has been kept under continuous observation and treatment: the urine is nearly always sugar-free, with sometimes a trace of diacetic acid. If she has one or two carbohydrate-free days a week, with a modified diet on other days, the urine can be kept sugar-free, unless she is subjected to very severe mental strain, when the sugar may rise for a day or two to 7 gr. per ounce and a considerable trace of diacetic acid be found. The patient has put on about 7 lb. in weight.

Remarks by Dr. JOHN PHILLIPS.

Diabetes may be considered as one of the rare disorders complicating pregnancy in which the nervous system and the assimilative process are both affected. Cases of puerperal eclampsia requiring Cæsarean section are not uncommon, but the additional complication of marked glycosuria may be described as very rare. The peculiar features of the urine in this case appeared to be the small amount of albumin, the presence of a considerable but varying amount of sugar, and the possibility of producing almost at will by diet increase and decrease alternately of each. No increase of sugar was noted at what would have been a menstrual epoch.

The Cæsarean section was carried out in consequence of the urgency of the symptoms and the impossibility of delivery through the long conical cervix. The question of operation was discussed with much anxiety; the classical paper of Matthews Duncan[1] well emphasised the risks that were being run by surgical interference, and it was not at all clear at the time whether the unconsciousness was diabetic coma or entirely renal in origin.

The result of the case has seemed to modify somewhat what would appear to be the general idea that surgical interference in diabetics is rarely successful and often fatal; it, moreover, invalidates the statement that owing to the almost universal death of the fœtus in pregnancy diabetes the mother's life alone should be considered. In the case reported the existence of a varying amount of sugar had been demonstrated as early as the fourth month, and therefore the development and birth of a healthy child was quite contrary to experience. The operation itself was sufficiently simple, involution was rapid, and the wound healed as quickly as in a normal case. Another dictum usually accepted is that, should the mother survive labour or abortion, the prognosis is never favourable, a fatal result occurring at various intervals of time post partum. In this case the patient has improved, and at the end of three years has gone up 7 lb. in weight. This result, however, it is only fair to say, is largely due to unremitting care and attention.

[1] On Puerperal Diabetes, Transactions of the Obstetrical Society of London, 1882, p. 256, with literature.

THE X RAY TREATMENT OF FUNGATING EPITHELIOMA WITH THE INTRODUCTION OF "PROGRESSIVE" FILTRATION.

BY CHRISTOPHER KEMPSTER, M.R.C.S., L.R.C.P. LOND.,

ASSISTANT DIRECTOR, X RAY AND ELECTRO-THERAPEUTIC DEPARTMENT, CANCER HOSPITAL, BROMPTON; PHYSICIAN IN CHARGE, X RAY AND ELECTRO-THERAPEUTIC DEPARTMENT, CITY OF LONDON MILITARY HOSPITAL.

AT the present time it is almost the universal custom to treat all cases of malignant growths with massive doses of X rays delivered through thick filters in order that the surface may be protected from the short soft surface rays and also in order that the dosage of rays may be as far as possible equally distributed to the superficial and deep cells of the growth and thus cause a gradual disappearance of the growth in its entirety. This method has undoubtedly the advantage of delivering a fairly equal dose of rays to the superficial and deep cells, and the results obtained are very encouraging but are unnecessarily slow.

I have during the past few years been in a position where I have been fortunate in being able to undertake the treatment of a large number of such cases, and it has been of interest to me to observe the effect of various methods of filtration upon this particular form of growth, and I have found from practical experience that those cases which give the best results in my hands are those which have been treated by what I term the "progressive filtration" method—that is, the gradual introduction of filters of progressive thickness. It is, I think, generally known that the short soft rays which are emitted from the X ray tube have a singularly rapid atrophic effect when administered in full pastille doses, and these if received upon the surface of a cauliflower-like fungation will speedily cause its disappearance; it is therefore my custom to deliver to these growths a full pastille dose of the rays without any filter whatever at a distance of 10·6 cm. from the anticathode, the healthy surrounding tissues being carefully protected, and repeat the dose at weekly intervals for two or three doses, according to the thickness of the fungation. I find usually by that time the fungation has shrunk in a remarkable manner; a thin 1 mm. aluminium filter is then introduced and a further full pastille dose delivered upon two or three weekly sessions, the pastille being upon the level of the skin surface and the dose measured according to the method of Mr. W. Hampson. By this time the fungation will, in most cases, have disappeared, and a fairly healthy dry surface will present. Upon the next irradiations the filter is increased to 1½ mm., together with a few layers of lint between the aluminium filter and the patient, and two or three irradiations administered, a full pastille dose each time. The filter is increased in thickness after the next two doses to 2 mm. at which, as a rule it remains.

I have by adopting this method secured a larger number of satisfactory results, the disappearance of the neoplasm being rapid and the site of the lesion presenting a normal appearance free from induration and practically free from scar, in some cases it being almost impossible to detect where the growth had been situated.

As an illustration I append notes of three cases which have recently been treated by this method with satisfactory result.

CASE 1.—The patient, a man aged 73, had a pimple upon the tip of his nose for many years. Occasionally it caused him some little irritation and he was in the habit of scratching it. Two years ago the pimple ulcerated and a fungating growth slowly appeared and increased in size until it formed a large mass at the tip and slightly to the left side of the nose. The health of the patient gradually became impaired; he felt weak and unenergetic and began to lose weight. The conditions rapidly became worse during the latter few months. He sought advice of Dr. McCaskie, of Tottenham, who referred him to me for X ray treatment.

I first saw the patient on Feb. 4th, 1915, when the lesion presented a fungating cauliflower-like growth, the size of a shilling, upon the tip of the nose. The patient was weak, anæmic, and had the appearance of having lost weight rapidly. A section was taken from the edge of the growth by Mr. W. G. Garner and found to be a true epithelioma. The growth was submitted to the influence of the X rays, a full pastille dose being administered at each sitting. The first three irradiations were given without the intervention of any filter whatever and were at intervals of a week—namely, on Feb. 4th, 11th, and 18th. The fungating mass immediately began to shrink, and when seen on March 9th had almost disappeared. Two doses were now given with the introduction of 1 mm. of aluminium as a filter—namely, on March 9th and 16th. On March 23rd the fungating mass had altogether disappeared. The two next irradiations were administered on March 23rd and April 13th through a 1½ mm. aluminium filter, together with a few layers of lint between the filter and the patient. By April 20th the nose presented a normal appearance, and at the present time, after the administration of two further full doses through a 2 mm. filter together with a few layers of lint, it would be difficult to locate the site of the disease, there being no scar and no induration, and no alteration in the normal contour of the nose.

In this case, as well as in the following cases, the pastille was placed upon a level with the surface treated and the dose measured *after* having passed through the filter.

CASE 2.—The patient, a woman aged 69 years, noticed a little "sore" upon the inner side of the right eyebrow; it increased in size rapidly until in three weeks' time it had reached the size of a threepenny piece and presented a rapidly growing cauliflower-like fungation. She sought my advice and requested that I should treat her with the X rays. I accordingly administered a full pastille dose upon Jan. 12th, 19th, and 26th. Upon all three occasions the dose was measured at the surface irradiated and no filter whatever was used. The growth responded rapidly to the treatment, and when seen upon Feb. 4th had shrunk almost to a level with the skin surface. I accordingly introduced a 1 mm. aluminium filter and a few layers of lint and delivered a full pastille dose, which I repeated on the 11th and 25th of the same month. On March 4th the growth had entirely disappeared and a well-healed little scar presented. I now introduced a 2 mm. filter and some thicknesses of lint and delivered a full pastille dose upon that day and upon the two following weeks.

The patient at the present time has gained her former good health, and the site of the tumour after these nine irradiations is only perceptible on account of the loss of a small patch of hair from the inner side of the eyebrow, which I fear will be permanent.

CASE 3.—The patient, a woman, aged 69 years, slipped and grazed her shin upon a stone step some six years ago. The graze refused to heal in spite of simple treatment and eventually ulcerated. She sought medical advice upon several occasions, but derived no benefit, and eventually came to St. John's Hospital. I first saw her on Sept. 3rd, 1914. The leg then presented an offensive fungating cauliflower-like growth some 5 inches in diameter and raised about 2 inches thick from the skin. A section was taken by Mr. Garner, and proved to be squamous-celled epithelioma with well-marked downward growth of epithelial columns, together with typical cell nests.

This case was treated in the same manner as the foregoing two cases—namely, a full pastille dose was delivered to the growth without the intervention of a filter for four doses at weekly intervals. The growth appeared to melt away, and when seen after the fourth dose it had almost reached the level of the healthy skin. A 1 mm. aluminium filter was then introduced for two doses, after which it was increased to 2 mm. for two doses, by which time (viz., Oct. 29th) the fungation had entirely disappeared and the base of the ulcer presented a clean, healthy appearance and was rapidly healing. A section was again taken at this date and showed that the proliferation of epithelial columns into the healthy tissues had ceased and that the epithelial downgrowths which had already taken place had been converted into connective tissue and had in places broken up. The cell nests, too, were seen to be loosely composed and to contain but few layers of cells, and these took the stain badly. Thus after eight irradiations a large foul fungating growth was converted into a small healthy and rapidly healing ulcer. The patient, who was in a weak cachectic condition, regained strength and health.

The patient has since been seen from time to time and has had several irradiations at intervals of four to six weeks. She is in good health and is able to walk long distances, suffers no pain, and is in better condition than she has been for several years.

Upper Clapton.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF EMPYEMA FOLLOWING A POISONED ARROW WOUND; NATURAL CURE BY ABSORPTION.

BY JAMES FREDERICK CORSON, M.D. VICT., D.P.H.

THE following case of natural cure of an empyema may be of sufficient interest for publication.

The patient was a native of one of the negro tribes of the Northern Territories of the Gold Coast. He was shot in the finger by a poisoned arrow about June 15th, 1915. This wound rapidly healed without apparent local or general disturbance. On June 24th he was admitted to hospital with pleurisy on the right side. His temperature on admission was 102° F., and he had some dyspnœa, slight cough, and complained of pain and tenderness on the right side over the pectoral muscles and below the axilla. There was some dullness on percussion and diminution of breath sounds. His general condition remained about the same during the next fortnight, the temperature varying between 99° and 101°; he slept well, took food well, and was able to walk about slowly. The dullness became more marked, and during the second week in July the liver was felt two or three inches below the ribs. On July 16th exploration with a hypodermic syringe in the seventh intercostal space showed the presence of pus. Stained films showed long and short chains of streptococci. Operation was refused. During the next week his temperature was rarely above normal, but the dyspnœa and the physical signs remained unchanged. On July 25th he left the hospital and made his way to his home about 16 miles away. On August 10th I visited him at his home and found him able to walk about though rather feeble. There was no dyspnœa, and his pulse and temperature were

normal. On percussion the right side was nearly as resonant as the left. The liver could not be felt below the ribs. He stated that he had not coughed up any fluid and there were no signs of a pointing abscess anywhere.

The case appears to have been one of natural cure by absorption. The poisoned arrows of this locality are apt to cause intense local inflammation with foul-smelling pus and some constitutional disturbance. The recovery from both the wound and the empyema suggests a natural strong resistive power to pyogenic infection.

Lorha, Northern Territories, Gold Coast.

A CASE OF TWIN ECTOPIC PREGNANCY.

BY GEORGE W. JOHNSON, M.A., M.B., B.CH. OXON.,
SURGEON TO JOHN COUPLAND HOSPITAL, GAINSBOROUGH.

THE points of interest in the following case are (1) that it was one of *twin* ectopic pregnancy; and (2) that no vaginal hæmorrhage occurred until after the completion of the operation, although complete rupture into the peritoneal cavity had taken place.

The patient, aged 41 years, married, consulted me for abdominal pain of some four days' duration. The pain was above the pubes on both sides and was colicky in character. The pulse was 76 and the temperature 98·2° F. No vomiting and no obvious physical signs beyond some slight tenderness and resistance to pressure above the pubes on either side. Menstruation, previously regular, had ceased ten weeks before "as the result of a severe chill" contracted at the time the monthly period was due. The patient had been married 14 years and had never been pregnant. There were no changes in the breasts and no signs of pregnancy, which was held to be out of the question. There was no vaginal discharge or hæmorrhage. Two days later an indefinite mass was felt in the left iliac fossa on deep pressure, and per vaginam a considerable swelling was felt to the left of and behind the uterus, and there was a boggy feeling in Douglas's pouch. The pulse and temperature remained normal and there was still no external hæmorrhage, but the pain continued colicky and became more severe.

Ectopic pregnancy was diagnosed and laparotomy was performed. The left tube was ruptured and bleeding and the right tube was congested and closed at the fimbriated end by a thick deposit of lymph. Two fœtuses of about ten weeks were found in the peritoneal cavity, with a single large placenta and a quantity of blood clot. The operation was completed as usual and convalescence was uneventful.

Gainsborough.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Opening Address.—Experiences in Serbia, 1914–15.

A MEETING of this society was held on Oct. 11th, Dr. W. PASTEUR, the President, being in the chair.

The PRESIDENT, in his opening address, referred to the difficulties connected with the holding of meetings during the war. This was, he said, reflected in the smallness of the last volume of the Proceedings. It must not, however, be judged by its bulk, for it contained matter of great interest and importance connected with the experiences in military surgery acquired in the present war. The difficulty of making meetings successful was accentuated by the fact that one-third of the total number of the members were engaged on active service either abroad or at home. The war was providing plenty of material for investigation, and our command of the sea allowed of the sending home of the wounded and sick men. In spite of the unspeakable horrors of the present war it would make considerable additions to our medical knowledge. There was considerable difficulty, however, in making adequate use of the material available. At the advanced bases it was no easy matter for notes to be taken, especially during periods of rush, and even those which were taken often failed to get through to England. Moreover, patients who were under observation, when they improved, were often drafted away to convalescent homes before their cases had been completely investigated. Under such circumstances it was inevitable that much of the experience gained by individual workers should be fragmentary. He then referred to two groups of cases which had been under his personal observation. The first were cases of pulmonary tuberculosis. The special features of this condition, as he had observed it in the soldiers invalided from the service, were the prominence of hæmoptysis and the rapid improvement which occurred when they were placed under favourable circumstances. In the great majority there was a previous history of pleurisy or of actual tuberculosis of the lung. Some had undergone sanatorium treatment, even within a period of two years, before they joined the service. Some of the cases followed pneumonia. The physical signs of the condition were very indefinite, moist sounds especially being scanty or absent. The second group, which provided material of the greatest interest, was the "enteric" group, including typhoid, paratyphoid, dysentery, trench diarrhœa, and intestinal protozoal diseases. Most of these came from the Near East, but some also from France. They were indefinite in type and benign, and recovery was almost invariable. He considered more particularly the modified typhoid class. Pyrexia of varying intensity and duration was often the only symptom or only prominent symptom. The onset was sudden. The pulse-rate, as in ordinary typhoid, was relatively low. There was malaise, but the headache was slight. The abdominal symptoms were indefinite, or perhaps altogether wanting. Spots were not uncommon, but were often indefinite and not always easy to distinguish from the many forms of spots which were seen on the skins of these patients. The spleen was not usually enlarged. The characteristic toxic appearance of a typhoid patient was little in evidence. The fever ended by lysis and convalescence was often ushered in by a few days of subnormal temperature. It had to be remembered that the typhoid met with was modified by inoculation. Bacteriological tests were difficult to carry out. A single agglutination test was of no use in such cases, but it was necessary to obtain a curve from repeated tests in the early stages of the disease, using very considerable dilutions. It was open to question whether trench diarrhœa represented relapses of modified typhoid fever. Some cases of that disease failed to react to any agglutination test. The suppression of the abdominal symptoms was the chief distinction of the modified disease. It comprised only a small fraction of a large class of enteric diseases, all of which required careful investigation.

Major J. T. J. MORRISON, R.A.M.C. (T.F.), related his experiences in Serbia in 1914–15.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The opening meeting of the thirty-fourth session of this society was held at the society's rooms, West London Hospital, on Oct. 8th. The retiring President, Mr. Aslett Baldwin, inducted the new President, Dr. Leonard Dobson, into the chair, who then presented the Keetley memorial medal to Mr. Aslett Baldwin.—Dr. Dobson's presidential address, on the subject of Progress in Treatment, after emphasising the profound influence of the discoveries of Lister on medicine as well as surgery, called attention to the results of certain modern operations, notably those for displacements of the uterus and kidney, gastro-enterostomy, and appendicostomy. He found that in malignant disease early operation was still the only sure method of cure, though the action of radium and the X rays was remarkable in many ways. In medicine proper he complained that there was too strong a tendency to follow the fashion of the time in the practice of medicine, and he instanced the prevalence of pyorrhœa alveolaris and the needless sacrifice of innumerable sound teeth. Dr. Dobson deplored the neglect of most physicians to make a study of dietetics, the need for which he considered very serious.

Reviews and Notices of Books.

The Care of the Baby.

By J. P. CROZER GRIFFITH, M.D. Sixth edition. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 463. Price 6*s.* 6*d.* net.

Practical Prescribing and Treatment in the Diseases of Infants and Children.

By D. M. MACDONALD, M.D. Aberd. London: Henry Frowde and Hodder and Stoughton. 1915. Pp. 199. Price 5*s.* net.

Common Disorders and Diseases of Childhood.

By GEORGE FREDERIC STILL, M.A., M.D. Cantab. Third edition. London: Henry Frowde and Hodder and Stoughton. 1915. Pp. 845. Price 16*s.* net.

"The Care of the Baby," a little manual for mothers and nurses, is a popular work in America. It has already attained to a sixth edition and it very accurately reflects the best opinions in that country in connexion with the management of infants and children both in health and in disease. We have carefully perused the more important parts of Dr. Griffith's work and find few statements or suggestions with which we are not in entire agreement. The chapter on the baby's clothes is practical, rational, and consonant with the best traditions; the "*reductio ad simplissimum*" of the infant's garments as advocated by Dr. Griffith is wholly admirable, and one to be commended alike for mother and child. In some respects it is to be regretted that the author does not support the admirable advice which he offers on the general management of children by arguments which appeal to the reason: his style is too categorical and dogmatic for these days of educated motherhood. We notice with regret that the frequent feeding of the young baby is still advised, and that the use of enemata, glycerine suppositories, and castor oil are recommended for the relief of constipation; and we regard the space occupied by descriptions of the sick baby as disproportionately large.

The little book on practical prescribing contains some useful prescriptions of drugs for administration to infants and children, and it may find valuable employment as an antidote to the growing practice of resorting to patent and proprietary medicines, a habit which is largely due to the proverbial inelegance of the majority of medicines which are made up to the physician's order. We cannot, however, compliment Dr. Macdonald on the success which has attended his own efforts in this direction. The modern child would, we doubt not, dislike the formularies nearly as much as those of the average practitioner. The two chapters at the end of this volume on diseases of the eye and tuberculosis, written respectively by Dr. A. MacGillivray and Dr. Halliday Sutherland, are disproportionately long and out of place in their special surroundings, although they are sound and concise résumés of large and important subjects.

It is rather more than three years since we published in THE LANCET a review of the second edition of Dr. Still's work; that a new edition should be called for within such a short space of time only confirms the views which we then expressed with regard to its high merits. In its revised form this volume has lost none of its old attractiveness, although as time goes on it becomes less and less like the series of lectures it was originally intended to represent. One new chapter has been added—namely, on the subject of cœliac disease; and the formulæ of the prescriptions included in the text have been modified so as to make them harmonise with the altered doses of the new British Pharmacopœia. Otherwise, after careful comparison with the last edition, we find very few alterations. Whether Dr. Still has been well advised to add this new chapter on so-called cœliac disease will remain to be seen; it is open to argument that, after all, the group of symptoms which he describes, and which were originally described by Dr. S. J. Gee as due to a specific disease with an independent entity of its own, may only represent in an intense form a very ordinary and commonplace intestinal complaint of childhood—namely, one which is dependent on pancreatic and hepatic insufficiency.

LIBRARY TABLE.

A Manual of the Practice of Medicine, prepared especially for Students. By A. A. STEVENS, A.M., M.D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania, &c. Tenth edition. Illustrated. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 630. Price 12*s.* 6*d.* net.—The ninth edition of this manual was noticed in THE LANCET of Sept. 7th, 1912, and a book which has run through ten editions since 1892 has evidently appealed to a wide circle of readers. The present edition has been carefully revised and nearly every chapter has received some attention, whether of addition or modification. New articles have been inserted on some 20 topics, such as Vincent's angina, alkaptonuria, hypopituitarism, and myasthenia gravis, showing that the author is careful to bring his manual up to date. The plan of the book remains unchanged, and the careful printing and spacing, the limp cover, and rounded edges make it a really convenient manual. But when all has been said, the book seems to us to lack colour, and the articles to be perfectly correct without containing much to arrest the attention or to stimulate interest—a matter, maybe, of minor importance in view of the excellent memory and power of attention of the students of the Woman's Medical College. One remedy might well be to add copious illustrations in the text or in a small companion volume. Surely the present 17 illustrations—comprising 7 microscopic views, 4 temperature charts, 3 outline sections of the chest, 2 sphygmograms, and 1 sketch of the centres of the brain cortex—are insufficient to illumine descriptions of more than 500 diseases.

Blood Pressure in General Practice. By PERCIVAL NICHOLSON, M.D. Third edition. With 8 illustrations. London and Philadelphia: J. B. Lippincott Company. 1915. Pp. 179. Price 6*s.* net.—We noticed this useful little book in our columns on its first appearance two years ago. Apart from minor changes in the text, the author has added a chapter on blood pressure in children, with the hope that "this new subject" will receive a proper amount of attention.

The Pocket Medical Dictionary. Edited by W. A. NEWMAN DORLAND, A.M., M.D., F.A.C.S. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 691. Price 5*s.* net.—This is a popular book with students of medicine, dentistry, veterinary science, and nursing on account of its clearness of type and small size. The ninth edition, revised and enlarged,

includes new terms, and in some cases definitions have been amplified. Generally speaking, the book is marked by accuracy, but there are one or two matters which should receive attention in the next edition. To commence with, we find that astasia is spelled "atasia." Under "Salvarsan" Hata has two "t's"; an "l" is missing in the name of Hassall, and we do not find any mention of Kernig's sign under that name. Beri-beri is described as "an endemic and infective form of polyneuritis," while vitamine is defined as "a substance existing in foods which is necessary to proper metabolism, and absence of which produces deficiency diseases, such as beri-beri." Pellagra is described as an endemic disease said to be caused by eating damaged maize, no allusion being made to its possibly infective character. What to include and what to omit in a dictionary of medical and veterinary science of a limited number of small pages must always be a problem, and on the whole we consider that Dr. Dorland has solved the problem very well. Medical men, for example, are not likely to look up such a subject as pellagra in a portable dictionary, while for others the information given is sufficient.

Drink and the War, from the Patriotic Point of View. By MARR MURRAY. London: Chapman and Hall. 1915. Pp. 156. Price 1*s.* net.—This is a useful survey of the drink question in relation to our successful prosecution of the war. The conditions normally prevailing in Russia, France, and Britain in regard to the consumption of alcohol are described. In Russia the national alcoholic beverage, vodka, contains 40 per cent. of alcohol. In 1913 local option was enacted, which would have assured prohibition, as women had the right to vote, and they are strongly against it. When mobilisation was ordered all liquor shops were closed and the sale of alcoholic liquors forbidden; this prohibition has now been extended for the duration of the war; also the State monopoly of vodka has been permanently abolished. The prohibition of alcohol is absolute for the army and practically extends to all classes. In France absinthe and similar drinks were prohibited, not wine. The soldier receives a third of a litre (about 12 ounces) of wine daily. The German soldier habitually drinks light beer, but during the war has intoxicated himself with the stronger liquors found in France and Belgium. At home the liquor trade has voluntarily proposed certain restrictions, especially as to hours and the serving of liquor to women, which have had very good results. The harmfulness of drink to the soldier is easily demonstrated. Wolseley, Roberts, and Lord Kitchener are united on this question, and no appeal can be made against such a concurrence of testimony. The author naturally does not approve of the rum ration. On this point the military authorities must be held to be responsible, and most people will consider that they are better able to judge than anyone else.

MISCELLANEOUS VOLUMES.

WE have a series of books dealing more or less directly with the war. The first of these, *A Surgeon in Belgium*, by H. S. SOUTTAR, F.R.C.S. Eng. (London: Edward Arnold. 1915. Pp. 216. Price 2*s.* net), is a cheap reprint of the original issue which was favourably noticed in our columns on April 10th. Mr. Souttar can write well on professional matters and has the power of making the devastation of war seem real. We are glad that this excellent description of the work of the Belgian Field Hospital is now available for a wider circle of readers.——In *A Surgeon in Khaki*, by ARTHUR ANDERSON MARTIN, M.D., Ch B., F.R.C.S. Edin., late Field Ambulance, 5th Division, with illustrations (London: Edwin Arnold. 1915. Pp. 279. Price 10*s.* 6*d.* net), a surgeon from New Zealand gives a personal narrative of his experiences with the Expeditionary Force during the battle of the Marne and after. He writes freely of professional matters and criticises all and sundry without distinction of person, punctuating the text freely with snapshots taken by himself. ——Of more serious interest is *The Diary of a French Army Chaplain*, by Abbé Félix Klein, translated from *La Guerre vue d'une Ambulance*, by M. Harriet M. Capes (London: Andrew Melrose, Limited. 1915. Pp. 288. Price 3*s.* 6*d.* net), of which the psychological value lies in the self-portrayal of the emotions of a careful observer and conscientious priest suddenly brought face to face with the horrors of war. The author was attached to the American Hospital at Neuilly, and from the beginning of the war to the end of 1914 describes many of the more pathetic incidents of the campaign, which may well bring home to the reader something of the passionate devotion to duty and of the calm resignation of the French nation.——Mr. IAN MALCOLM, M.P., in *War Pictures Behind the Lines* (London: Smith, Elder, and Co. 1915. Pp. 226. Price 6*s.* net. Illustrated), devotes two chapters to the work of the British Red Cross Society in France, and three others to visits to Switzerland and Italy under war conditions, which, along with the more usual type of war picture and some excellent full-page illustrations by French artists, make a volume of some distinction.—— *The War and the Balkans*, by NOEL BUXTON, M.P., and CHARLES RODEN BUXTON (London: George Allen and Unwin, Limited. 1915. Pp. 112. Price 1*s.* net), gives a clear outline of affairs in the Balkan States and of their general attitude in regard to the war.——A volume dealing with another aspect of the war problem is *Enlistment or Conscription?* by A. M. B. MEAKIN, F.R.G.S. (London: George Routledge and Sons, Limited; New York: E. P. Dutton and Co. Pp. 129. Price 1*s.* net). Apart from newspaper and magazine articles, very little has been written on conscription in this country, and at the present moment any thoughtful contribution either for or against conscription is valuable. Mr. Meakin makes out a case for some form of compulsory training, though he is convinced that no Briton will agree to have an army on the German model.——A small volume of the Oxford Medical Publications also calls for notice. In *The Stretcher Bearer*, a companion to the "Royal Army Medical Corps Training Book," illustrating the stretcher-bearer drill and the handling and carrying of wounded (London: Henry Frowde and Hodder and Stoughton. 1915. Pp. 138. Price 2*s.* net), a number of good photographs illustrate the principal stretcher exercises. The book is bound in khaki cloth, blank pages are provided for notes, and the size is suitable for the pocket.——Grim reading is provided by *Germany's Violations of the Laws of War, 1914–15*, compiled under the auspices of the French Ministry of Foreign Affairs and translated with an introduction by J. O. P. BLAND (London: William Heinemann. 1915. Pp. 342. Price 5*s.* net), which gives the text of many official documents, as well as facsimiles and transcripts of letters of German soldiers.—— In *Voluntary Aid in Devon* (Exeter: Eland Brothers. 1915. Price 1*s.* net) Mr. W. FOTHERGILL ROBINSON gives an account of the measures that have been adopted to meet the present emergency. These have been most successful, the success being undoubtedly due to the fact that long before the war broke out the leaders of the movement in the county had seen the necessity for a permanent headquarters staff at Exeter, and were consequently well prepared to deal with any difficulties that might arise. No less than 18 military hospitals are at work in the county, besides three for Belgian wounded and two for convalescents from the Expeditionary Force.

From the dominating theme we turn with momentary relief to philosophy and mysticism. Under the title of *Religio Medici Modereni* (this spelling appears both in the title and in the page headings), by NEO KAMA, M.D. (London: John Bale, Sons, and Danielsson, Limited. 1915. Pp. 118. Price 3*s.* 6*d.* net), the anonymous author, who describes himself as an old medicine-man, sets out his personal views and experiences. His religion, to use his own words, "embraces, in a broad pantheistic sense, the relations of man with his fellow man, and the whole cosmos of which he is

a part; also the past, the present, and the future." If the reader, misled by the title, expects to find the dignity and subtlety of thought of a Sir Thomas Browne he will be disappointed, although the discursive remarks on dogmas, life and death, prayer rewards, morality, and so forth are sometimes marked by well-considered judgment and afford not unpleasant reading. The essence of rational religion and morality he believes to be: "Play the game of life squarely and fairly and fear nought," from which few will dissent.

EXPERIMENTS ON LIVING ANIMALS.

BY reason of the great stress of work thrown upon the Home Office owing to the war, it has not been possible to prepare the report on experiments performed in England and Scotland during the year 1914 in the usual detailed form under the Act 39 & 40 Vict. c. 77, but a summary report has been issued showing (Table I.) the names of all places registered for the performance of experiments during 1914; and (Tables II., III., and IV.) the names of all persons who have held licences during any part of the year, with the total number of experiments returned during 1914, classified and arranged according to their general nature. The total number of licensees was 678, of whom 188 performed no experiments, but in eight instances it has not been possible to obtain the necessary report owing to the absence of the licensees on war service, and the total number of experiments was 87,253 (905 less than in 1913). Under Table II. (A) the total number of experiments (with anæsthetics) was 4889. These were experiments other than those of the nature of simple inoculations, hypodermic injections, or similar proceedings. Of these 4889 experiments there were performed under licence alone, 2772; under certificate C, 263; under certificate B, 1550; and under certificate B plus EE, 304 experiments. Under Table II (B) the total number of experiments (without anæsthetics) was 82,364. These were devoted entirely to inoculations, hypodermic injections, and some few other proceedings. Of these 82,364 experiments, 81,891 were performed under certificate A, 383 under A plus E, and 90 under A plus F.

Certificates are granted as follows:—A. Dispensing with the use of anæsthetics. B. Dispensing with the obligation to kill the animal before recovering from anæsthesia. C. Permitting experiments in illustration to lectures. D. For the further advancement of knowledge by testing previous discoveries. E (with A). Permitting experiments on cats or dogs without anæsthetics. EE (with B). Permitting experiments on cats or dogs and dispensing with the obligation to kill the animal before recovering from anæsthesia. F. Permitting experiments on horses, mules, or asses.

The returns show that during the year 1914, 22,371 experiments were performed by 19 licensees in the course of cancer investigations; of these, 625 are in Table II. (A) and 21,746 in Table II. (B). The latter are almost entirely inoculations into mice. Ninety-four licensees report over 24,000 experiments which were performed for Government departments, county councils, municipal corporations, or other public health authorities. Twenty-one licensees report over 15,000 experiments for the preparation and testing of antitoxic sera and vaccines, and for the testing and standardising of drugs.

During the year the several registered places have been frequently visited by the inspectors and a large number of experiments have been witnessed. For the most part visits have been made without previous notice. The animals were found to be suitably lodged and well cared for, and the licensees generally attentive to the requirements of the Act and the conditions attached to their licences by the Secretary of State.

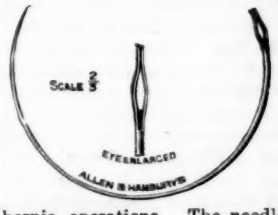
The Chief Inspector who makes the report to the Secretary of State for the Home Department is Mr. G. D. Thane. The Advisory Committee appointed by the Secretary of State to assist him with advice in the administration of the Act consists of: The Lord Moulton of Bank, Sir Anthony Bowlby, C.M.G., Sir John Rose Bradford, K.C.M.G., F.R.S., Sir H. Bryan Donkin, M.D., Sir George Henry Makins, K.C.M.G., C.B., Sir Seymour John Sharkey, and Mr. Charters J. Symonds.

Ireland is reported upon separately in Dr. Joseph O'Carroll's report to the Chief Secretary to the Lord Lieutenant of Ireland. The number of persons holding licences in Ireland at the end of 1914 was 30, an increase of five new licences. The physiological laboratory of University College, Galway, has been added to the list of registered places. The number of licensees who returned no experiments was 10. 340 experiments were performed by 20 licensees, 92 being under licence alone and 248 under certificate. 210 were simple inoculations under Certificate A, of which 86 were made for the investigation of diseases of the lower animals. In 132 cases the object of the research was physiological; in 198 the object was pathological, with either a diagnostic or therapeutic aim; and in eight cases the aim was medico-legal. Dr. O'Carroll says: "It occurs to me that where so many problems especially pertaining to the public health are being examined by earnest and well-qualified persons they might be invited to record in their annual reports a brief note of any results definitely acquired by them."

New Inventions.

AN IMPROVED FORM OF NEEDLE FOR MUSCLE AND FASCIA.

THE needle which I here describe is 4½ inches, round-bodied, with a Paterson pear-shaped eye (see illustration) to prevent unthreading, the suture being passed through the wide portion of the eye and then jammed by being drawn into the narrow neck. The needle forms a curve of five-eighths of a circle; the advantage of this extra eighth was first pointed out by Moynihan. There are two sizes, the stouter being the more suitable for general work, and is especially convenient for suturing muscle and fascia in abdominal and hernia operations. The needle is used without a holder, and to anyone who has not actually used it the length gives a suggestion of clumsiness which is apparent rather than real.



The needle, which I have found most useful, was made at my request a few years ago by Messrs. Allen and Hanburys, Wigmore-street, London, W.

Plymouth. C. HAMILTON WHITEFORD.

FEDERATION OF UNIVERSITY WOMEN.—The Prize Fellowship (£100), offered by the Federation of University Women for Research in Science, has been awarded to Miss Muriel Wheldale, of Newnham College, Cambridge. Miss Wheldale is the author of numerous publications dealing with our present knowledge of the chemistry of the Mendelian factors for flower colours.

KING EDWARD VII. ORDER OF NURSES (SOUTH AFRICA).—The King Edward Nurses were organised two years ago as a memorial in South Africa to commemorate the life and aims of King Edward VII. They give their services under the direction of medical practitioners to patients who can pay in whole or in part for such service, and to those who cannot pay at all. The report for the year 1914–15 shows a record of good work, although owing to the shortage of nurses several cases had to be refused. In the Kroonstad centre 40 cases were attended, and in the Ladysmith centre 27, the single nurse districts of Carnarvon and Fraserburg being collectively responsible for 30 cases. The total fees realised was £466 19*s.* 8*d.* During the year many applications were made for the establishment of nursing centres in different parts of the South African Union, but no new centres were formed owing to lack of sufficient financial support. The address of the secretary is Governor-General's Office, Pretoria.

THE LANCET.

LONDON: SATURDAY, OCTOBER 16, 1915.

The Treatment of Infected Wounds.

WE live in a world of change, and medicine is mercifully no exception to the rule of advance. Medical opinion is constantly in a state of flux; a fixed creed would imply stagnation of thought—a condition not far removed from mental death. This thought, which is ever present to the minds of those who wish to progress, must have suggested itself to those attending the inauguration of the Exhibition of Fracture Apparatus at the Royal Society of Medicine on Oct. 8th. The Director-General of the Army Medical Service, in opening the exhibition, pleaded for the limitation of research to matters of practical importance to the Army at the present juncture, and he was followed immediately by Colonel Sir ALMROTH WRIGHT, who, in a brilliant lecture, further illustrated in a demonstration by himself and his distinguished pathological workers, proposed to alter the practice of military surgery in many directions. Nothing less than the use of the chemical disinfectant, with phenol as its prototype, is at issue as the result of Sir ALMROTH WRIGHT'S researches, and the result will assuredly affect the surgery of peace as well as of war. We have been, suggests Sir ALMROTH WRIGHT, relying on outside aid when the tissues and fluids of the body were sufficient for the task, and required merely some kindly assistance in performance of their delicate functions, not the repelling interference of potent chemicals. That the chemical substance often did no harm is but a qualified testimonial to its value, and in Sir ALMROTH WRIGHT'S estimate an antiseptic substance, like iodine, applied to the outlet of the wound served at most to disinfect its excreta, as it never came into intimate contact with the wall itself, in which the delicate biological processes were taking place. These are, of course, the points which the demonstration subsequent to the lecture was designed to prove, and to a report of this in another column the reader is referred.

Of the body tissues the blood cells are naturally those the most easily examined, both because they can the most readily be withdrawn from the body for examination and because the conditions of their action can be fairly reproduced *in vitro*. We use the phrase *in vitro* advisedly rather than "in the test-tube," as for these and similar investigations the test-tube after decades of supremacy has had to give place to the capillary tube in various forms, but all forms such as can be fashioned by the unaided hand of man from simple glass tubing with the help of a gas or petroleum flame. By experiments conducted in capillary tubes it can be shown that the presence of chemical disinfectants does not produce all that has been expected on an infected blood-clot. The same organism which is powerless to pass a wall of leucocytes, and which is so weakened by exposure overnight to normal blood serum that it no longer multiplies on nutrient media, "likes," as one worker has put it, "to have its tail dipping into carbolic." But what is true in the quiet retreat of the laboratory may not apply in practice; results *in vitro* may not hold in the actual conditions of the body, at all events not under the strenuous conditions of war surgery. This obvious objection to the line of research adopted by Sir ALMROTH WRIGHT and his coöperators is met in the first place by the rejoinder that those who place their reliance on chemicals do not know, apart from control experiments, what the results of their applications have been. The medical man is not unnaturally very prone to assume that where he has made great efforts the results are due directly to these efforts without too carefully analysing the share taken by the natural processes of the body. The advocates of the physiological method have gone further than this, and have applied the teaching of the capillary tube to the wound itself, with the results which it is now possible for us to check, test, and estimate.

At the beginning of the war acquaintance, dropped for the life-time of most of us, was renewed with the bacillus perfringens. In countless cases where the tissues had not merely been infected but extensively bruised and lacerated, an ominous crackling began to appear, with an evil smell and an intense and frequently fatal systemic poisoning. Every kind of strong chemical was used in the treatment of these wounds, but the bacillus appeared practically invulnerable, and the successful cases were, as we know, especially from the German side, those in which the whole infection was cut away *en masse* with the knife. SAUERBRUCH, one of the deftest of surgeons in the German profession, at all events assured a great surgical congress at Lille that this was the only method which he had found to give success. Contused and lacerated wounds have occurred in plenty in this war. Gas may bubble out of some of them, but there is no septic absorption when the wounds are sufficently opened and drained. A strong solution of common salt produces a copious flow of plasma which cleans up the wound. "Keep moving, please," is the instruction to the microbes, "and move outwards only." If sufficient emergency exits are provided the traffic is not allowed to get congested at narrow places, fast in the centre and slow along the edges, with backwaters at each end where the flow is intermittent; but by the sympathetic study of the physical principles underlying drainage the flow of serum and of leucocytes

is kept continuous. On the internal wound surface the corpuscles form a layer which the microbes cannot penetrate. Their presence in the wound does not matter; it is what passeth into the man that defileth. The uniform flow of plasma is always washing out into the draught the microbes in the wound; some of these the plasma can deal with itself, and if it is long enough in contact with them it may even render them innocuous. Amongst these is the bacillus perfringens. The remainder, streptococci and staphylococci, fall a prey to the leucocytes. Such is the teaching which Sir ALMROTH WRIGHT put forward in his lecture at the Royal Society of Medicine last week, and when the lessons which he would have us learn are published in full—for the lecture was much abbreviated in delivery—our readers will be able to judge the nature of the work by which the teaching is supported.

War and Economy.

THE taxes introduced by the Budget should have the effect of making many persons diminish their expenditure upon things not necessary to them. Those things may not be the articles upon which duties have been placed, and assuredly the Chancellor of the Exchequer thinks that they will not be so, but they may well include a large class of objects of self-indulgence, to dispense with which will not at all injure the community. Purveyors of luxuries are bound to suffer, temporarily at any rate, from the public abstinence, and some persons will be obliged to seek fresh means of support; but no great number of those who lose their existing means of livelihood need become a burden upon their neighbours. For the young, the strong, and the healthy there is plenty of occupation in immediate connexion with our gigantic military engagements, and these would naturally form the majority of the persons whom a rigid national economy would dispossess of their present source of income.

How far national economy has been practised already is to some extent a matter of surmise, but the medical profession lives in such intimate relation with all classes of society that the information which we possess is well-nigh final upon such a point. In our opinion the regulation of the expenses of many households is as yet inadequate. But we should probably be right in saying that the professional classes, including notably medical men and lawyers, have had it brought home to them for some time that their incomes, already diminished considerably, are sure to become more so, and that expenditure, which is not adjusted already to circumstances, must be curtailed without delay. The proceeding is not so difficult for those whose resources have exceeded their actual necessities, but the case is different with families who have never had more than sufficient to maintain with decency the position and appearances associated with their class. It is these members of the "middle" community who are feeling, and are likely to feel, most keenly the pressure caused by diminished annual receipts joined with higher taxation and prices. For many of them small savings are possible, no doubt, but the harassing petty economies must be considerable before the result becomes appreciable. In families where there are wives and daughters capable of doing the work it may be possible to dispense, altogether or in part, with servants, and this is perhaps the easiest way to effect substantial reduction of expenses. Housework is by no means an unhealthy occupation, either for mind or body, and the experience gained will prove useful if circumstances again allow those who have acquired it to keep servants. The saving of wages and food, added to the economy which the employee does not always practise where an employer's goods are concerned, will be found well worth the effort, and there need not in most cases be any anxiety as to the fate of discharged dependents. Employment is easily obtained at present, in domestic service and elsewhere, and the working classes as a whole, in spite of higher prices, are not suffering greatly by reason of the war. The reduction of the staff of domestic servants must to a great extent be dependent upon the personnel of the family and the character of the premises lived in, but the former is the main point to be considered, for, as a rule, to move house is a bad economy. At any rate, to save rent by changing quarters is by no means easy; to save in food, both for the family and the establishment, is most easily accomplished by entrusting its preparation to those who pay for the material, where sufficient technical skill in cooking is present. But it is an unfortunate fact that we are not in this country economical in the kitchen, as Mr. HERMAN SENN, lecturing at the Institute of Hygiene last week, rightly pointed out. Knowledge of food values is beginning to be acquired by the educated classes, but of economy in fuel our domestic proceedings take little stock. Economy and culinary preservation of food values are obtained best by slow deliberate cooking; the most popular method with us—namely, roasting—is the most expensive, braising, steaming, stewing, and boiling all being cheaper. The hard experience of war may teach our modest households how to live better in the future on a lower expenditure.

The principle which should guide us in our economic endeavours is clear. We should try to practise our modifications of our former lives with the object that they should be substantial and worth the effort made to secure them, while at the same time we should inflict as little hardship as possible on others by our enforced parsimony. And the outstanding medical lesson is that the change will do us good, not harm. The large family supported on the small wage can make no voluntary reduction in household expenses, but the result of the war has been in few instances to make their position harder, and in an appreciable number of cases their burden has been lightened, despite the general rise in prices.

Those who have had a superfluity will be enormously benefited in health by losing it; and those who have hitherto considered that their expenditure on food and clothes was as moderate as possible will be surprised to find that they can maintain their health, their bodily weight, and their personal dignity at a greatly decreased outlay of money. The general health of the community will assuredly rise in response to a wide practice of economy accompanied, as it necessarily will be, by the cultivation of self-sacrifice.

Annotations.

"Ne quid nimis."

AN EXPERIMENT IN DRINK CONTROL.

THE order of the Central Control Board (Liquor Traffic), which came into force in the wide area known as Greater London on Oct. 10th, is an emergency measure adopted to meet the need of an occasion without precedent. It is, however, not impossible that regulations framed in order to promote sobriety in war-time may form a useful guide to those interested in the health of the nation whenever peace again reigns. The order preventing "treating" recognises the serious nature of the offence at which it is principally aimed—the exposure of soldiers and war-workers to temptation, for it provides a maximum penalty of six months' imprisonment with hard labour and a fine of £100. It will cause some inconvenience and annoyance to a large number of convivial and hospitable persons, but at the same time it should save their pockets and benefit their health in an appreciable degree. If it is able effectively to prevent treating in general, and particularly the idiotic habit referred to of offering liquor to the men of all others who in their own interest and in that of the country should be undergoing the training of athletes, it should be some guide as to whether a pernicious custom can be stopped by legislation; how far the stopping of treating may prevent drunkenness is another question. Many will stigmatise the present order as "grandmotherly" in the control which it claims to exercise over the individual, and if any attempt to legislate upon such lines had been made a year and a half ago, opposition of the bitterest kind, ridicule and failure would no doubt have been the lot of those bold enough to associate themselves with the proposal. And yet few will deny that from the point of view of the national health the custom of "standing drinks" has much to answer for. Its baneful influence has been felt not only in the life of the idle of all classes, and among lads exposed for the first time to the temptations of early manhood. All men of mature age, whose lives have been passed in commercial circles, can recall instances of failure, downfall, or premature death traceable to the intrusion of treating into the course of business negotiations where the victims, but for the acquired habit of tippling, were on their way to become prosperous and respected citizens. Very few men who have won to prosperity in business will deny that a clear head and sound health are more conducive to success than a willingness to indulge in alcohol or to provide it for others. We trust that the present prohibition of treating may result in a permanently higher standard of sobriety in this country. The conditions produced by the war have already considerably modified public views with regard to the liberty of the individual, and we believe that some at least of the stronger restrictive actions outlined in Sir William Collins's address (which we publish this week) would be accepted without protest.

EMPHYSEMATOUS GANGRENE OF THE NECK.

AT a meeting of the Académie de Médecine de Paris on Sept. 7th M. Paul Guéniot reported two cases of emphysematous gangrene which presented points of interest. One was the locality—the neck. The disease is so rare there that, in spite of its prevalence in Belgium and the north of France at one stage of the war, M. Tuffier recently declared at the Société de Chirurgie that he had never seen it in this situation. M. Guéniot also discovered a test by which emphysematous gangrene may be distinguished, before there is any discolouration of the skin, from subcutaneous emphysema due to wounds of the air passages, which often occurs in the neck. While laying open with the thermo-cautery the affected parts he found that in emphysematous gangrene the gas is usually inflammable (it proved so seven times out of eight). The flame produced was momentary and did not injure the tissues. In one case the patient, a soldier, wounded on May 31st, 1915, showed on June 3rd a small wound in the front of the neck. Over the greater part of the anterior surface of the neck gaseous crepitation was found. In view of the rarity of emphysematous gangrene in this region the question at once arose whether the emphysema was due to a wound of the air passages. With the thermo-cautery the wound was opened down to the thyrohyoid membrane. The gas escaped and burned on contact with the cautery. Multiple openings were then made with the cautery all over the neck as far as below the ears, and inflammable gas escaped from them. In one place the anterior border of the sterno-mastoid was laid bare. The wounds were washed out with a solution of peroxide of hydrogen. In the afternoon a new area of crepitation was found over the left supraspinous fossa and was opened up. All the wounds were irrigated with hydrogen peroxide and dressed with ether, and an intravenous injection of colloid gold was given. On the following day there was a new area of crepitation on the right side of the neck which was treated in the same way and another intravenous injection was given. After this extension ceased and healing commenced. But on June 24th fulminating hæmoptysis occurred and was fatal in a few minutes. In the second case, a soldier, wounded on August 19th, 1915, showed on the 23rd gaseous infiltration on the left side of the neck in front, but the wound was on the right side, a little anterior to the angle of the jaw, which was fractured. Radioscopy showed a bullet and its sheath separated from one another in the left supraclavicular fossa at a depth of 3½ cm. An incision was made and the bullet extracted. The bullet wound was then opened up with the thermo-cautery and inflammable gas was found. Multiple incisions were made with the cautery over the whole of the left side of the neck, extending even beyond the middle line, and inflammable gas was found in the wounds. Splinters were removed from the inferior maxilla. Finally, the bottom of the wound made for extraction of the bullet and the wound of entry of the latter

were touched lightly with the cautery. The wounds were washed out with solution of hydrogen peroxide and then with ether and an ether dressing was applied. In the afternoon crepitation was found on the right side of the neck and the thermo-cautery was applied there. On the following day the disease was found arrested and at the time of the report recovery was almost complete. M. Guéniot considered that multiple *débridements* with the thermo-cautery in the whole of the emphysematous area repeated in the new areas invaded, if there is a tendency to extension, on the same day, on the following day, and on the day after that often arrest the disease. Twice he has followed the emphysema with the cautery above the crural arch to the abdominal wall, in one case up to the umbilicus and in the other to the costal border. In the first case he followed up the emphysema for the three consecutive days as it extended and on the fourth day the gangrene was definitely arrested.

THE PROMOTION OF VEGETABLE GROWTH BY BACTERIZED PEAT.

FOR a considerable time some remarkable experiments under the direction of Professor W. B. Bottomley have been carried out in the botanical laboratories at King's College, their subject being the influence of nitrogen-fixing organisms on plant growth. These experiments have increased immensely in importance now that the question of furthering the production of our food-supply from home sources is being seriously discussed. Opportunely enough, therefore, there has recently been published a book on the subject giving particulars of the work done at the botanic laboratories, with experimental details up to date.[1] The results are very remarkable, particularly those obtained by employing auximones, which appear to be to plants what vitamines are to the processes of nutrition in animals. These auximones, or accessory food bodies, can be derived from bacterized peat. A whole series of experiments were made on various pot plants with bacterized peat or humogen at Kew Gardens and at the Chelsea Physic Garden during the summer of 1913, when it became evident that the bacterized peat possessed a certain growth-stimulating property that could not be accounted for by any manurial constituents present. In an experiment with seedlings of Primula malacoides potted up in loam, leaf mould, and sand it was found that plants watered twice with the water extract of only 0·18 gramme (equal to 2·7 grains) of bacterized peat were after six weeks' growth double the size of untreated plants, and it was noted that flower production and root development were promoted equally with increase of foliage. The examples quoted, which in many cases are illustrated from photographs, are amazing. Fig. 10 in the book shows potatoes which were grown in sterilised moss soaked with humogen extract in a shallow box containing one-fifth of a cubic foot. Four potatoes were planted, and in less than eight weeks nearly three pounds of tubers were obtained, while the plants had not nearly finished their growth. In the glasshouses devoted to tomato growing, where the plants have been treated under the best known conditions, the effect of humogen, says the author, has been so striking that a glance reveals which of the pots have received dosage with humogen and which have been grown under strictly comparable conditions, except for the non-addition of the humogen. Four groups of experiments were made with five pots receiving ordinary soil alone, five soil and manure, five soil and humogen, and, lastly, five soil, manure, and humogen. In all cases the plants were strong and healthy and had "fruited well," but those treated with humogen were taller plants than the others; their leaves, which were rather smaller, showed the peculiar rich bluish-green tint that is associated with vigorous growth, and in the case of the humogen-treated plants there were clusters of red fruits, while on the others the fruits were only beginning to change from green to red. An illustration demonstrates clearly enough that the humogen-treated plants produced a greater quantity of fruit than the plants not treated. Humogen is prepared from peat at Greenford Green, Harrow, the works being the old buildings used by Sir William Perkin for the preparation of aniline dyes, and it is estimated that when the substance is dealt with commercially the cost of production will be probably less than £10 a ton. The great importance of these experiments will be appreciated at the present moment when the remarkable results are considered. Possibly our small growing area on these islands could, under the stimulus of humogen, be rendered capable of producing enough food material for our own needs, independent altogether of other food-growing countries. And the basis of all is peat. Surely this must mean that there is in Ireland a huge wealth of material which has long lain fallow. Apart from the great advantages gained by agricultural and horticultural interests, the prospect of a new and prosperous industry would appear to be opened up by these experiments for countries which, like Ireland, possess vast tracts of peat.

[1] The Spirit of the Soil, or an Account of Nitrogen-fixation in the Soil by Bacteria, and of the Production of Auximones in Bacterized Peat. By Gordon D. Knox. With a Foreword by Professor W. B. Bottomley. London: Constable and Company, Limited. 1915. Pp. 238. Price 2s. 6d. net.

THE ETIOLOGY OF TYPHUS FEVER.

IN view of the recent prevalence of typhus fever in Serbia and the possibility that infection may be conveyed to other countries from this focus, anything bearing on the causation of the disease is of special interest at the present time. The acute and strictly defined course of the affection resembles rather that of a bacterial than that of a protozoon infection; and the experiment of Nicolle, which seemed to show that typhus fever was due to a filtrable virus, has not been confirmed by subsequent observers. A recent paper by Dr. H. Plotz, Dr. Peter K. Olitsky, and Dr. George Baehr[1] records the isolation of a bacterial organism which has serious claims to be regarded as the causal agent. It is an anaerobic organism—which may account for previous failures to identify it—and was first obtained by the use of Noguchi's methods for the cultivation of spirochætes. It grows best, however, on serum glucose agar, forming opaque rounded colonies at a depth of 3 cm. or more below the surface of the medium. The organism itself is small (0·9–1·93 μ in length), pleomorphic and Gram-positive. It is not motile and not acid-fast, and has no capsule. It may be straight or slightly curved, with rounded or slightly pointed ends. Coccoid forms are also met with, and involution forms occur early. It does not form

[1] Journal of Infectious Diseases, 1915, vol. xvii., No. 1, pp. 1–68.

spores. It ferments glucose, maltose, galactose, and inulin with production of acid; but no visible gas is produced. Growth in artificial media is very slow, so that cultures from the blood are of little value in the diagnosis of the disease. The reactions of agglutination and fixation of complement are present when the organism and the serum of a patient are brought in contact, and precipitation occurs in a mixture of serum and bacillary extract, after the crisis of the disease has taken place. Monkeys are readily susceptible to typhus infection, which can be induced by injections of a patient's blood both before and after the crisis. Guinea-pigs are also available as experimental animals. The organism has been named bacillus typhi exanthematici at the suggestion of Professor W. H. Welch, the name having been originally suggested by Klebs for the hypothetical infective agent of the disease.

CHARLATANS AND MIRACLES.[1]

A BREEZILY written and entertaining article by Mr. Charles Higgens, reprinted from Guy's Hospital Reports, describes some of the cases which have come under the observation of a well-known ophthalmic surgeon, where disease affecting the eyes has laid its victims open to the wiles of the quack and charlatan. His account of a visit paid by one of his patients to ———, a German "specialist," occupying a suite of consulting and other rooms at the —— Hotel and bringing thither his secretary and his optician, introduces a type of highly-fed and financially successful adventurer in medical matters, whose task is rendered easy by the credulity of the wealthy and ignorant, and by the extraordinary zeal of some people to push and advertise practitioners of this class, particularly if they happen to be foreigners. Perhaps some of the former patients of ——— will recognise the picture drawn by Mr. Higgens if it should come under their notice and their eyesight should have survived his attentions, and to others it will revive memories of visits paid to other such "specialists" in luxurious consulting-rooms at hotels or in cities that are now "enemy country," in search of relief that never came, except to the patient's pocket. Of the diseases which do not threaten death to those affected by them, those which involve the eyes or the ears perhaps supply the most numerous, as well as the most remunerative, patients to persons who will promise cures by methods claimed as exclusively their own. The complaint may be in fact incurable, or, on the other hand, may be such as might yield to suitable treatment, but threatened loss of eyesight and growing deafness are afflictions which do not prevent anyone from travelling either in his own country or abroad so long as his means allow him and some one will recommend the excursion. The trip is frequently made on the strength of assertions that a person known, generally by repute only, to some gossiping friend, has been cured after all the "regular doctors" or perhaps all "our English specialists" had given him, or her, up. We need hardly say that in cases where the charlatan is credited with success "the giving up by the regular doctors" has usually consisted in recognition of the fact that there was nothing the matter, but unfortunately the patient has not been told so in sufficiently impressive terms. Mr. Higgens tells of the "miracles" wrought by himself upon patients who have endeavoured to simulate disease of the eyes, under the influence of hysteria or otherwise. They were not left by him any opportunity to go away saying that he had given them up. They were told that they had nothing the matter and found that it was true. Sometimes, however, they insisted upon crediting the oculist with thaumaturgy to which he laid no claim, and the father who accompanied one of them actually asked him to remove, miraculously not surgically, a large fatty tumour on the back of his neck. Truly the experiences which have fallen to Mr. Higgens and many other members of the medical profession render us thankful that as a rule the charlatan is not trained to recognise the complete absence of disease. *Populus vult decipi*: and it is not to be wondered at if rogues add "decipiatur," and carry out the aspiration. They have a large number of unwise persons on their side, including those who have made the law of libel a standing protection against honest criticism of the dishonest methods of anyone who does not actually infringe the criminal law.

[1] Charlatans and Miracles. By Charles Higgens, F.R.C.S., Senior Consulting Ophthalmic Surgeon, Guy's Hospital.

IONIC TREATMENT OF PYORRHŒA ALVEOLARIS.

A GRAPHIC account of pyorrhœa alveolaris, from the point of view of the patient, has been sent us by Mr. F. W. FitzSimons, director of the Port Elizabeth Museum, South Africa. The patient's attention was drawn to the gums by bleeding on brushing or on slight pressure. He consulted a medical man, who prescribed astringent mouth-wash and a tonic. Later on a lower molar became loose; a dentist removed tartar and prescribed mouth-washes. A little later another dentist extracted a loose tooth, advised hydrogen peroxide as a mouth-wash, and stated that the disease was absolutely incurable. Injection of tincture of iodine into the gum pockets was next tried, then injections of kolynos and dentinol, with no result except a painful dental abscess. An autogenous vaccine was prepared by the Government pathologist and used for six months, combined occasionally with stock staphylococcus and streptococcus vaccines. This was an unqualified failure. Finally, in consultation with Mr. J. L. Roper, a practising dentist in Port Elizabeth, ionic treatment was tried, a pledget of wool impregnated with 2 per cent. solution of zinc chloride being forced into the gum-pocket and the anode applied with a current of 2 milliampères for 15 minutes. The strength of the zinc solution was afterwards raised to 5 per cent., and finally to saturation. A single application sufficed to sterilise the less affected gums and repeated application with the stronger solution served to keep the disease in check in the more advanced stages.

AN EPIDEMIC OF APPENDICITIS.

Dr. E. Saxlund has published[1] a detailed account of an epidemic of acute or subacute appendicitis of relatively mild type in the district at the head of Tranö fjord in Norway. The first case was in December, 1907, the sixty-fifth (and last) in August, 1910. No patient died, and almost all were operated upon at the Tromsö Hospital; 12 of the appendices removed were submitted to microscopic examination, and inflammation of a more or less severe type was found in 11 of them—the twelfth

[1] Tidsskr f. d. Norske Lægeforening, Christiania, 1915, xxxv., 834, 888.

came from a case of tubal abortion that was not seen by Dr. Saxlund himself. In the last three months of 1908 there were 18 cases, and 18 more in the first three months of 1909. Sixty-two of the patients came from the Sörreisen district, which has 2100 inhabitants. Several interesting points were noted about the distribution of the cases; 44 were aged from 15 to 30, only 5 were under 15, and only 5 were over 45. Six were males, 59 females, and 44 of the 59 were unmarried women. The epidemic took the form of local outbreaks to a large extent; thus the 18 cases seen in the last quarter of 1908 were all near a brackish lake, the Reis Water; two months later there were 10 more cases in this small area. No evidence pointing to infection by food or drinking water could be obtained. The appendicitis appeared to be but mildly infectious; in nine instances 2 people from a single household were struck down and in one 3, but generally at an interval of several months, usually three. In one region there were 30 patients among 81 neighbours living close together; in 10 out of 30 houses more than one case of appendicitis occurred. The nature of the infecting agent remained unsolved by microscopic and bacteriological examination of the few appendices removed and submitted to research. Dr. Saxlund supposes, however, that there was some specific virus at work.

MILITARY MEDICINE TWO AND A HALF CENTURIES AGO.

THE librarian of the Royal Society of Medicine has, along with larger and more recent works, placed on the shelf two little books dated 1674 on military medicine and surgery, or, as we may say, war primers. The one, entitled "Cista Militaris, or A Military Chest," is "A Description of Dr. Lower's *Lancet*, for the more Safe Bleeding," with an illustration thereof. The chest was based on the "Military Chest of the most Illustrious Heroe, Maurice, Prince of Orange, wherein not onely Medicines and Instruments, but also Linnen, Rowlers, and other Necessaries were prepared." Of the medicines, a supply was to be kept of Purging Simples, Purging Compounds, Electuaries and Powders Strengthening the Heart and noble parts, Aromaticks, Distill'd Waters and the like, Syrup, Roots, Herbs, Flowers, Seeds, Fruits, Oyl, Unguents, Fats, Plaisters, Gums, Minerals, and Meals. The Chirurgeon is also to be furnished with necessary Instruments, some to be fitted for a Box to carry about him in his Pocket; these ought to be made small and little, that they may neither load him, nor afright the Patient. Among these figure Trepans, Levatories, Scalpra's, Instruments to draw forth Bullets from Gunshot Wounds, and a great Saw for amputating Great Members. We learn further that a Chirurgeon ought to be provided with splints of several bignesses, made of thin pieces of wood. Finally, Lint to keep the lips of the Wounds asunder, that they unite not again. And to conclude: Candid Reader, be sure that it be so provided with Medicaments and Instruments, that out of it, when occasion requires, thou mayst be able to assist and relieve the Sick; for what thou art employed about here, is neither Beast, nor Pretious Stones, but Man for whom the Son of God shed his pretious blood upon the Cross.

The second book is entitled "A Body of Military Medicines Experimented by Raymundus Mindererus, late Chief Physitian of the Electoral Court of Bavaria, and Englished out of High Dutch." It begins with the Morals of a Souldier, who ought to serve his Prince faithfully to the best of his skill and power, to obey his Officers readily, and to do to all others, as he would be done to, if he were in their condition. Then is given advice regarding the care of his Body as follows:—To free thyself from Vermin, take a good quantity of Wormwood, and the inner cuttings of horse-hoofs; boyl these both together in half lye and half water, and so put thy shirt into it, and afterwards dry it in the Air, without washing it out any other way, and not a lowse will come into it. If thou canst not have Spring water, let some drops of Oyl of Vitriol fall into it, and you need not then fear any corruption or poyson in such water. Otherwise if time will permit, let it boil up and cool again, and you may drink of it safely. Concerning the Army Medical Staff we learn:—These ought to be no Youngsters, that are lately come from Schools and Universities, but such as are expert in the Cure of Diseases. The Physitians and Chirurgions are to be intimate friends together, assisting one another without envy and pride, for the better relief of their Patients. 'Tis very necessary, both these should go abroad and travel before they undertake to practise, thereby to learn to converse with the more discretion and gentleness with all sorts of humors. In therapeutics the work is both informing and dogmatic:—To avoid fevers, keep thy body clean every way; be chearful; never fasting, nor never full. To heal injuries, keep the wound clean, and let not many look into it, for fear they should by their breath annoy it. You may also recover frozen Feet with white rotten Turnips beaten with Butter or Tallow, and so clapt on. If you have a strong breath, take now and then three or four Aloes-pills.

Both books are printed in London by William Godbid, and are to be Sold by Moses Pitt, at the Angel, over against the Little North Door of St. Paul's Church. The price is not stated.

THE DOCTRINE OF THE SUPER-MAN.

Professor J. A. Lindsay, in an address on "Eugenics and the Doctrine of the Super-Man" to the Eugenics Education Society at the Grafton Galleries on Oct. 7th, showed how the war had served to make known the views and teaching of many German writers, amongst whom an important place must be assigned to Friedrich W. Nietzsche. A Slav by origin and temperament, and quite out of sympathy with German militarism ideals, Nietzsche doctrines of force, strength, and self-realisation had exercised, in Professor Lindsay's opinion, much influence upon the modern German mentality. Nietzsche despised the virtues of pity, sympathy, and altruism, regarding them as psychologically false and enervating. He approved of war, apart from its causes or results, as being the final test of efficiency and a necessary tonic for humanity. He advocated the rule of the strong and the efficient, and thought little of the mass. He looked forward to the evolution of the super-man, the genius, leader, teacher, conqueror, who should guide humanity to new paths of action and achievement. Nietzsche's teaching, therefore, was ultra-aristocratic and opposed to all modern democratic ideals, condemning science as aiming at an ideal of industrial equality and mediocre culture, and exalting suffering as the source of all that is noblest in life and as the great stimulant of artistic creation. His attitude to life and to

civilisation was that of a prophet and an enthusiast rather than that of a man of science. Nietzsche was ignorant of biology, and his theory of the evolution of the super-man had no real biological basis. Professor Lindsay concluded that Nietzsche's emphasis upon the strong and virile virtues contained elements of truth not to be lightly set aside, for the conflict between the aristocratic and the democratic ideal is not yet over, and modern democracy is still upon its trial. Much depends upon how the fiery ordeal of the present war finds the various elements of society competent or wanting.

THE LATE PROFESSOR MINCHIN, F.R.S.

BY the death recently of Professor Minchin the zoological world has suffered an undoubted loss, which is accentuated by his comparative youth. It seemed reasonable to expect that many years of work were before him, in spite of obvious physical delicacy. Professor Minchin was born in 1866, and was educated at Oxford at Keble College, obtaining later a Fellowship at Merton. For the greater part of his career he was actively engaged in teaching, at first at the medical school of Guy's Hospital, where he was lecturer on biology, and later at University College, in which institution he succeeded the late Professor Weldon as Jodrell professor of zoology. It was during this period that Professor Minchin did the greater part of his chief zoological work, which consisted of both embryological and anatomical studies of the sponges. Later he was appointed to the chair of protozoology at the University of London and practically ceased to investigate sponges, devoting the whole of his time to the parasitic protozoa as was demanded by the conditions of his professorship. Professor Minchin was an excellent type of the real specialist, that is to say, not a person who confines himself to some one department of a large subject only, but one who with a wide and accurate knowledge of the whole subject elected to study certain branches in minute detail. And his work gained by the fact that he did not pass his life in learned seclusion, but was on the contrary well known in general scientific circles, taking an active part in various movements and societies. For a considerable number of years he was a member of the council of the Zoological Society of London and served also on several committees of that society. As a vice-president of the same, his conduct of the meetings and observations upon communications read were always skilful and well worded. In private life Professor Minchin showed clearly an enthusiasm for all branches of study, and always proved himself to be well informed and well read. His death is a real loss to British science, as well as a source of grief to a large circle of friends.

AT the next meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on Tuesday, Oct. 19th (at 4.30 P.M.), a discussion on the Treatment of Cerebro-spinal Meningitis will be opened by Sir William Osler. All sections of the society are invited to be present.

BEQUESTS TO WEST OF ENGLAND CHARITIES.—The late Miss Julia Rendle, of Yelverton, Devon, has bequeathed £1000 to the South Devon and East Cornwall Hospital, £300 each to the Plymouth Royal Eye Infirmary and the Devon and Cornwall Ear and Throat Hospital, Plymouth, and £200 to the Plymouth Public Dispensary.

MEMORANDUM ON THE

EMPLOYMENT OF BANDAGES FOR THE IRRIGATION OF WOUND-SURFACES WITH THERAPEUTIC SOLUTIONS, AND THE DRAINING OF WOUNDS.

BY COLONEL SIR ALMROTH E. WRIGHT, M.D., F.R.S., C.B.,
A CONSULTANT PHYSICIAN TO THE EXPEDITIONARY FORCE IN FRANCE.

THE irrigation of wounds has over the application of wet dressings the following advantages.

We can bring our therapeutic solution continuously into application, maintaining its concentration unaltered. I have elsewhere, in my lecture, emphasised that this is, in treatment with saline solutions, of fundamental importance.

We can, given proper arrangements, apply our therapeutic agent to all the internal and external surfaces of the wound, and at the same time obtain ideally effective drainage.

I propose in this Memorandum to describe a series of simple arrangements which, I think, satisfy all requirements.

In the ordinary arrangement in which the irrigating fluid is supplied in the form of a "drip" falling into the wound—and it is the funnel-shaped wound I have in view—the fluid makes its way down along the side of the wound in a funnel, and we thus treat only one small sector of the wound. We have, in fact, the conditions of a rock valley or cave, where a thread of water flows to the bottom in a single channel, leaving all the rest dry.

Let me show you that by an arrangement of bandages the water can be led into the wound where we require it, that it can be distributed so as to wash down all the walls, and that it can then be carried away without any leakage into the bed.

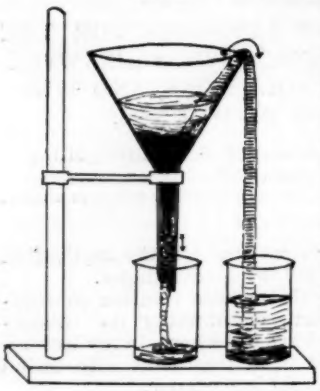
It will be convenient to begin by considering the properties of bandages and strips of gauze as conduits for carrying water. They may be regarded as conduit pipes with porous walls—pipes which will convey water up hill by capillary attraction, down hill by gravity, and first up and then down hill when arranged as siphons.

We may as a matter of fact confine our consideration to bandages—for the ordinary bandage is, as comparative experiments bring out, a more effective water carrier than a strip of gauze cut to the same width.

The first point which comes up in connexion with the employment of bandages in suppurating wounds is their liability to be obstructed by the lodgment of particles in their meshes. The method which is employed when the dependent opening of a wound is plugged with a strip of gauze would seem specially designed for the purpose of compassing such obstruction. Here gravity carries the undiluted pus directly down into the wick, and we obtain instead of a drain an impermeable bung which effectually confines the discharges.

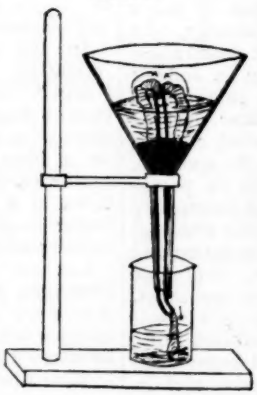
The arrangements shown in these models (Figs. 1 and 2) show how these difficulties can be circumvented and the wick be kept free from obstruction. We have in these—we may call them "mud-funnel" experiments—funnels filled in with a glutinous mixture of flour and water and in each case a bandage arranged as a siphon. In the first model (Fig. 1) the siphon is a simple loop of bandage carried over the rim of the funnel. We have in addition in this model a wick carried up

FIG. 1.



into the stalk of the funnel. In the second model (Fig. 2) we have a rubber tube introduced through the stalk of the funnel and standing out above the surface of the fluid. This rubber tube is threaded with a bandage, and its end has been cut into two strips which hang down into the muddy fluid. The siphons are here, as you will appreciate, working in what would correspond to wounds standing full of pus, and they have, as you see, in each case carried over a very considerable volume of muddy fluid. And if they were continually refilled they would—for only the distal ends of the ascending limbs of the siphon bandages can here be obstructed and put out of functioning—continue to siphon over indefinitely the upper segment of each ascending limb. You will also note that the wick in Model No. 1 has become obstructed and has carried out only very little fluid. Finally, in connexion with Model No. 2, I would like, in passing, to call your attention to the principle that we can always, as occasion may require, reinforce the one or the other limb of the siphon; and that in this model we have in the two strands of bandage which compose the ascending limb of the siphon two streams of fluid which are tributary to the descending stream.

FIG. 2.



I pass on to certain further points having also a general application. You will appreciate that though water will, when it has a clear fall, run down a bandage without leakage, it will, as soon as contact is made with any surface, flow away over that surface. Again, it will leak out at any point when we constrict the bandage, or at any point where we loop up the bandage. For water refuses to run quickly up hill.

To prevent trouble from these sources we must, where our irrigating fluid has to be carried through obstructions in the wound, or up hill, substitute rubber tubing for bandage. If, however, we have to resort to a siphon arrangement for drawing off our irrigating fluid from the reservoir it will be of advantage to thread a bandage into the ascending limb of the siphon, and to carry it sufficiently far in to pass down some little way into the descending limb. It will also be advisable to leave in position the wire which we have used for threading in the bandage, and to bend it round into the form of a narrow U so as to prevent the end of the rubber tube kicking itself out of the water. The great advantage we get from the use of a wick in our delivery tube is that we cut down the delivery from what the rubber tube would carry (which would be excessive) to what the wick will carry (which will be amply sufficient). Moreover, the siphon when furnished with a wick will start itself automatically, and also restart itself when the reservoir comes to be refilled.

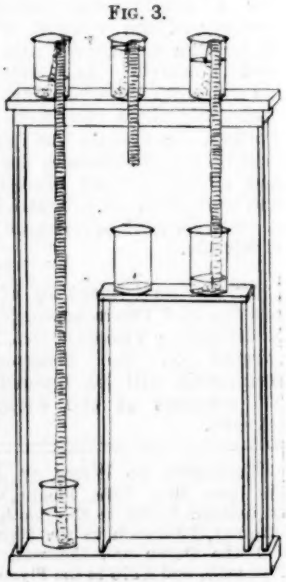
I pass to consider the factors upon which the efficacy of bandage siphons depends. The volume of fluid delivered is determined (*a*) by the height to be climbed in the ascending limb; (*b*) by the length of, and weight of water in, the descending limb; and (*c*) any obstacle to delivery encountered at the distal end of the descending limb.

In addition to these the rate of delivery will be affected (*d*) by the nipping of the bandage when it rests upon a knife-edge, this factor coming seriously into account in experiments with a long length of descending limb heavily weighted with water.

The experiment here set up (Fig. 3) shows the influence of factors (*b*) and (*c*); these being the factors we have to take special note of in connexion with the drainage of wounds. It will be seen that where other conditions are the same it is always the siphon with the longer descending limb which gives the more efficient drainage. Again, it will be seen that, other conditions being the same, a larger volume of water is delivered from a bandage whose end is immersed in water than from a bandage suspended in air. In the case of water dripping off from a bandage into air, consideration will show that the bandage will, just before the drop falls, be overfull of water, and that the inflow into it will for that moment be suspended, to be accelerated as soon as the drop has fallen off. As a result we have in the bandage which is dripping off into air a cyclically interrupted flow. In contrast to this we have, where the descending limb of the bandage goes down into water, a continuous unobstructed delivery.

The practical application of this in connexion with wounds is that the siphon bandages which carry off the washings from wounds ought to pass down from the patients' beds into water in vessels placed on the floor. And if any bandage which happens to be too short to dip into the water the drip from it will be accelerated if it is torn into tails.

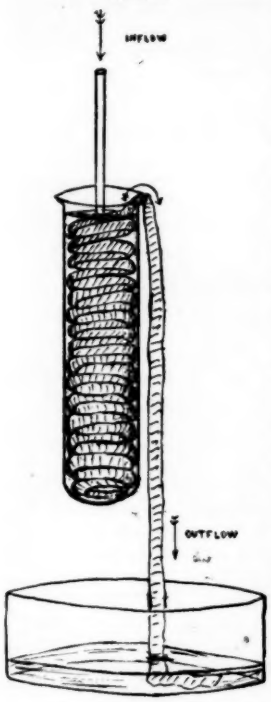
FIG. 3.



Where only little water is flowing off through bandages draining a wound evaporation must be guarded against, for this will, by diminishing the load of water, retard the outflow into the descending limb.

Up to the present we have considered only siphons formed from a single loop of bandage—i.e., drainage carried out through conduit-pipes very much smaller in calibre than the vessel they are draining.

FIG. 4.



One may in many cases, in particular in wounds where the bandages may be obstructed by pus, desire to provide an ampler outflow. This can be done by packing the wound full of bandages. But there is here a right and a wrong way.

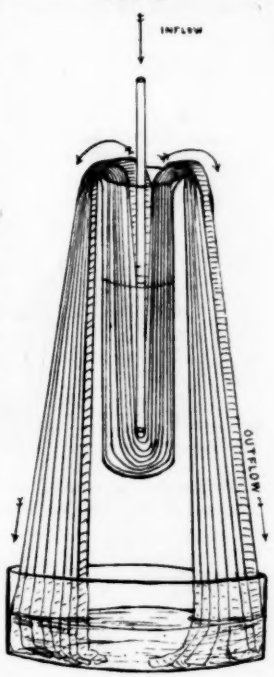
In this model (Fig. 4) I have packed a test-tube in the ordinary method by taking a strip of bandage and coiling it up into the wound. And I have then taken the loose end of the bandage and leading it out of the test-tube have employed it as the descending limb of my siphon. Side by side with this I have packed a test-tube (Fig. 5) by taking a number of loops of bandage, laying them one above the other over the mouth of the tube, and then pushing them down so as to form with the strips outside a sort of rough letter M. We may call this the *multiple loop method of packing*. When I now turn on the water and fill up these companion test-tubes you see that while the one which is packed with a single strand of bandage coiled up inside it empties itself only very slowly, the one which is packed with multiple loops empties itself almost as fast as I can fill it in. You will note in connexion with the first system of packing that it is quite effective, really more effective, than the second so far as relates to the conveyance of fluid along the tube. In point of fact, the contiguous coils of bandage fuse together and give us all that a full calibre wick could. The real fault of the system lies in the outflow. It is as if we had a large main running out into a small pipe.

Holding these principles before us we may now consider how we can in each particular type of wound arrange for feeding in the therapeutic solution, for distributing it all over the walls, and effectively draining the wound.

Wounds may for our purposes be classified into *cylindrical wounds disposed horizontally; funnel-shaped wounds with the funnel opening disposed upwards, downwards, and laterally;* and finally *ascending or descending cul-de-sac wounds.* We may take these in order.

Arrangement for irrigating a cylindrical wound which perforates a limb horizontally.—Here, as shown in the model (Fig. 6), the irrigating fluid is conveyed into the interior of the wound in a narrow rubber tube. The wound is then drained by two leashes of loops which go down on either side into vessels of water. These are pulled into position in each case by a strand of bandage fastened, as shown in the figure, round the bight of the loops.

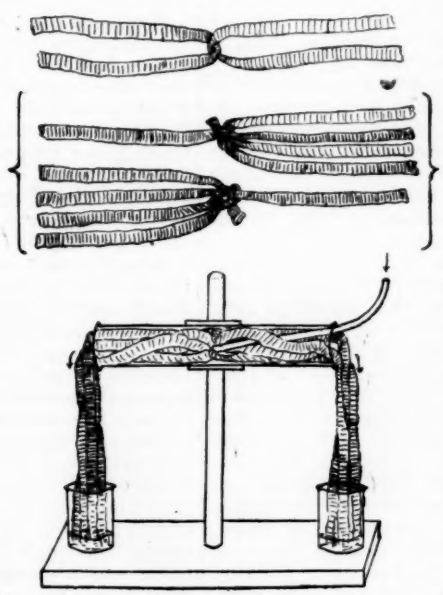
FIG. 5.



In actual practice, when we want to verify that the irrigation is working properly we do so by the following devices.

We test the effluent by drawing a line across one of the bandages with a stylographic pen, and note that the ink is carried down in streaks by the current. We test the inflow by piercing the rubber tube with the needle of a hypodermic syringe and driving in a bubble of air just above the point where the glass union provides an inspection chamber. Then holding the piece of glass tubing horizontally we see the bubble of air carried along. When we want to test the condition in the interior of the wound, we aspirate into the syringe while pinching the rubber tube proximally to the insertion point of the needle. Where we want to see the effect of the irrigation in conspectus we cut transverse strips from the bandage at different levels, and prepare microscopical preparations from these—streaking them out one by one over the surface of microscopic slides. We then, if the wound is getting progressively cleaner, see the microbes falling off, and if the wound were getting dirtier should see the microbes increase, as we travel inwards towards the wound.

FIG. 6.



Arrangement for irrigating the inverted funnel wound.—The kind of wound here in view (Fig. 7) is that produced when a projectile entering the thigh from in front fractures the femur and drives it before it, making an extensive wound of exit.

A strip of bandage tied loosely round the bight of a leash of bandages is passed up from below through the stalk of the funnel. This is now drawn tight, and then the strips of bandage hanging bunched up in the centre are one by one looped up over a framework fitted just below the mouth of the funnel. The irrigating stream is now carried through the upper bandage into the neck of the funnel, and here divides up into a whole system of separate streams which together irrigate the whole interior face of the funnel. In connexion with the actual wound we should loop up the bandages not as in the model through a circular framework of wire but as in Fig. 8 over a light aluminium cradle placed astraddle upon the limb.

FIG. 7.

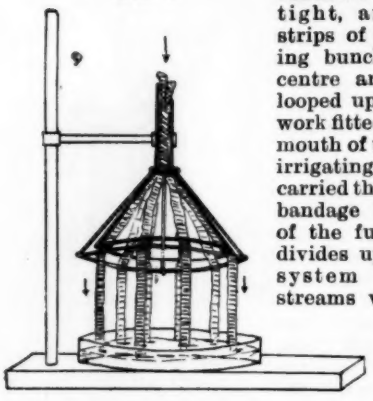
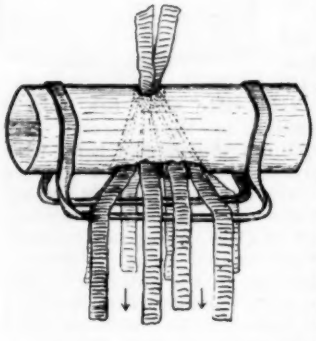
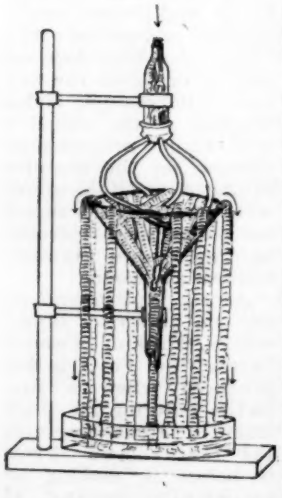


FIG. 8.



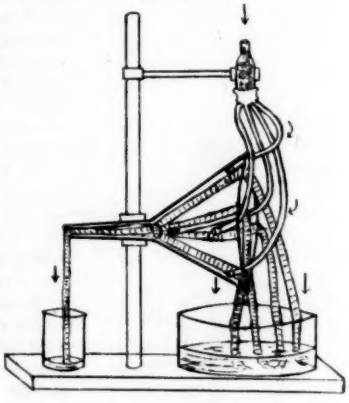
Arrangement for irrigating the upright funnel wound.—The wound here in view (Fig. 9) is that seen in connexion with a compound fracture of the femur with wound of entrance behind and the wound of exit in front. Instead of dividing after entering the wound the irrigating stream must here divide outside the wound and enter in a number of separate streams. We can get this by dividing up the end of a bandage into a number of tails and planting these about in the wound.

FIG. 9.



The arrangement shown in the model embodies improvements suggested by my fellow worker, Lieutenant H. H. Tanner. It will be seen that we have here fitted to the delivery tube which conveys the fluid into the wound the upper end of a test-tube. This serves as a receptacle for the bandage. Fitted to the mouth of the test-tube we have a rubber cap traversed by a number of small rubber tubes. Into each of these is inserted one of the tails of the bandage. Finally, each of the rubber tubes is stiffened with wire. This enables us to direct its stream in any direction and to ensure the tubes maintaining any position which we give them in the wound.

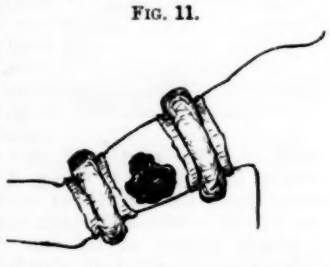
FIG. 10.



Arrangement for irrigating a funnel wound which is disposed horizontally.—Except only in the detail of the disposition of the irrigating tubes and the provision for carrying off the washings the arrangement (Fig. 10) is the same as in the upright funnel wound.

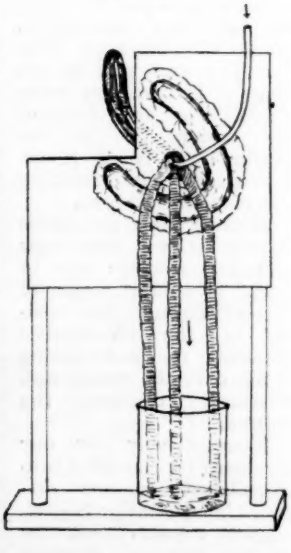
Arrangement for irrigating an ascending or descending cul-de-sac wound.—Both these wounds are irrigated by the arrangement shown in Fig. 5. In other words, the irrigating fluid is conveyed in a fine rubber tube upwards or downwards to the blind end of the wound, and the washings are carried away by multiple loops of bandage.

FIG. 11.



Method of preventing the irrigating fluid running away over the patient's skin or clothing and soaking into the bed.—It has already been emphasised that bandages resemble tubes with porous walls and that fluid leaks out whenever on entering or leaving a wound they make contact, as they inevitably must, with the external surface of the body.

FIG. 12



We need not here concern ourselves with leaking from the inflowing stream. We have already provided against that by feeding the irrigating fluid into the wound through rubber tubes. There remains the leakage from the bandages which carry the outflowing stream. It is a form of leakage which is always liable to occur except where the wound of exit occupies, as the patient lies in bed, the most dependent portion of his body surface. The only method of dealing with this very serious inconvenience is by damming back the water which escapes. We can do this by means of what I may call *irrigation flanges*. Where we are

dealing with a wound situated on a limb, what we require is a *ring flange* above or below the wound (Fig. 11), or better irrigation flanges both above and below. Where we are dealing with a wound opening on the outer aspect of the trunk or limb, with, for instance, a wound on the lateral aspect of the shoulder, we require a *horseshoe flange* (Fig. 12) round the opening of the wound.

Such flanges are built up upon the patient's skin in a very simple manner. We first prepare some formalin gelatin. We do this by dissolving 20 grammes of gelatin in 100 c.c. of water—or better, so as to have plenty, twice that quantity in double as much water.

We now, pouring the gelatin solution out into a bowl, add to it one-tenth of its volume of the ordinary 40 per cent. formalin. Then taking a number of short lengths of bandage, previously laid ready to hand, we immerse these in the formalin gelatin. This done we take a roll of cotton-wool and encircle the limb with it, or, as the case may be, bend this round in the form of a horseshoe and then apply it, with the opening of the horseshoe disposed upwards, to the skin round the wound. Going back then to our strips of bandage lying in formalin gelatin, we take them one by one from the bowl, paste one end down on the skin, carry the middle over the ridge formed by the roll of cotton-wool, and then paste down the other end on the far side, taking care always to overlap one strip of bandage by another. When we have covered in our roll of cotton-wool we have completed our task, and we have now, as soon as the formalin gelatin sets—and it sets in a few minutes—a light stiff water-tight confining dam firmly fixed down upon the patient's skin.

Let me say in conclusion that I am indebted to my fellow-worker, Lieutenant H. H. Tanner, for setting up and drawing the models, and also for valuable assistance in elaborating the above system of irrigation and drainage.

PREVENTION OF INFANT MORTALITY.—Under the auspices of the Central Committee for National Patriotic Organisations and the National Association for the Prevention of Infant Mortality a public meeting will be held at the Guildhall, London, E.C., on Tuesday, Oct. 26th, at 3 P.M., to consider a national campaign to promote the welfare of motherhood and infancy. The Lord Mayor of London will preside, and the following speakers have agreed to address the meeting: the Duchess of Marlborough, the Right Hon. Walter Long, M.P. (President of the Local Government Board), Sir Thomas Barlow, Sir James Crichton Browne, and Mr. Benjamin Broadbent, whose action during his recent mayoralty in Huddersfield showed how much good can be done by interesting the public in this question. Admission will be free by tickets, which may be obtained from the honorary Lecture Secretary of the Central Committee for National Patriotic Organisations, 29, Cockspur-street, S.W., or from the National Association for the Prevention of Infant Mortality, 4, Tavistock-square, W.C.

ROYAL SANITARY INSTITUTE: MEETING AT SALISBURY.—A sessional meeting of the Royal Sanitary Institute will be held on Oct. 22nd and 23rd at Salisbury. On the first day, at 5.15 P.M., the Mayor will entertain the members to tea in the Council Chamber, and at 7 P.M., in the Oak Court of the Council House, Colonel J. Lane Notter, R.A.M.C., will preside at a discussion on the Recent Epidemic of Cerebro-spinal Meningitis in Salisbury. This will be opened by Dr. E. T. Fison, the medical officer of health of Salisbury. Mr. J. W. Lovibond will subsequently open a discussion on the Specific Colour of Blood in Health and Disease. During the Saturday, Oct. 23rd, visits will be made to a milk factory, to the sewage-disposal works, and the Tintometer works. Tickets may be obtained from the secretary of the Institute, 90, Buckingham Palace-road, London, S.W., or from Dr. E. T. Fison, Municipal Offices, Salisbury.

PARAFFINUM LIQUIDUM B.P.

II.[1]

THE NATURE AND QUALITY OF THE ARTICLE SUPPLIED TO THE PUBLIC.

WE now publish the results of our investigation as to the nature and quality of the liquid paraffin actually supplied to the public for laxative purposes. In a previous article it was pointed out that probably the most important quality of an oil used as a bowel lubricant was its viscosity and not so much its specific gravity. It was agreed, however, that the requirements of the Pharmacopœia as to purity in a number of directions seemed to be desirable. These refer to the absence of sulphur compounds, freedom from unsaturated hydrocarbons, a neutral reaction, and the provision that the oil should be "transparent, colourless, not fluorescent, and with no odour or taste." How far the samples purchased complied with these requirements will be seen from the accompanying table, which contains a record of our laboratory findings. It is a significant fact that out of 23 samples purchased only two of them were labelled "B.P.," and in some instances the oil was not sold as paraffinum liquidum at all, but under a fancy title, more or less implying the laxative properties of the contents.

A STANDARD OF VISCOSITY PREFERABLE TO A STANDARD OF SPECIFIC GRAVITY.

It is evident that more importance is attached by pharmacists to the specific gravity clause in the Pharmacopœia than anything else, for not a single sample was higher or lower in density at normal temperature than the official figures. It may be observed, however, that these figures give a very wide margin—viz., a maximum of 0·890 and a minimum of 0·860. On the one hand, some oils at as low a figure as 0·860 would be quite unsuited to therapeutic requirements, inasmuch as they would not have the property of a lubricant, and the treatment is based on lubricating property. This consideration emphasises the importance of standardising not upon specific gravity but upon the actual fluidity of the oil employed. The recognised method of measuring this fluidity is to note, at an agreed temperature, the time of outflow of 50 cubic centimetres of the oil from a Redwood standard viscometer. The number of seconds required is taken as a measure of viscosity. In these tests 100° F. has been taken because it approximates to the body temperature, and will give the physician an idea of the oil's fluidity when used by the patient. On the other hand, as we have already pointed out, a valuation based on specific gravity may be misleading, for there are oils of 0·880 specific gravity which are actually less viscous and are poorer lubricants than many oils of 0·850 to 0·860 specific gravity. It cannot be too often stated that what is therapeutically expected of paraffinum liquidum is its lubricating property and nothing else, and lubricating property can be gauged only on a viscosity factor and not on specific gravity. In engineering circles it is well established that density is not necessarily an index of lubricating value and it is now accepted that specific gravity is of no importance and viscosity of prime importance. The same thing holds true of the human machine. An examination of the table will show that while the variations in the specific gravity of

[1] The previous article appeared in THE LANCET of Oct. 2nd, p. 761.

Results of the Examination of Samples of Liquid Paraffin Purchased on the Market.

Observation.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Specific gravity at 60° F.	0·873	0·871	0·866	0·874	0·874	0·874	0·864	0·879	0·866	0·874	0·863	0·873	0·884	0·872	0·869	0·874	0·860	0·870	0·858	0·865	0·861	0·870	0·861
Specific gravity at 100° F.	0·860	0·859	0·852	0·858	0·857	0·859	0·870	0·864	0·853	0·857	0·870	0·856	0·867	0·858	0·844	0·859	0·846	0·856	0·843	0·852	0·844	0·857	0·845
*Viscosity at 100° F. ...	125	120	94	126	130	130	296	190	104	128	—	122	243	128	—	126	198	79	—	90	71	112	65
Sulphur compounds ...	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Very marked	Free.	Trace.	Free.	Marked	Free.	Very marked	Free.	Free.
Unsaturated hydrocarbons	Free.	Free.	Trace.	Trace.	Free.	Free.	Free.	Free.	Free.	Trace.	Free.	Free.	Trace.	Free.	Intense	Medium.	Very marked	Free.	Very intense.	Medium.	Free.	Free.	Trace.
Reaction (acid or alkali)...	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.	None.
Fluorescence	Free.	Free.	Very slight	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Slight.	Free.	Marked	Free.	Very marked	Free.	Marked	Free.	Free.	Free.	Free.
Appearance	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Col.	Light yellow.	Col.	Col.	Col.	Light yellow.	Col.	Col.	Light yellow.	Col.
Contents of bottle in fluid ounces	8	8	8	6	5	6	5	7	8	6	8	5	—	16	8	6	8	8	4	6	—	8	—
Retail price of contents ...	10½d.	2/-	1/6	1/3	1/-	1/6	1/3	1/9	1/8	1/-	2/-	1/9	—	2/9	2/-	1/-	1/9	1/3	10d.	1/3	—	1/4	—
Equivalent charge for one pint of 20 fluid ounces	2/2	5/-	3/9	4/2	4/-	5/-	5/-	5/-	4/2	3/4	5/-	7/-	—	3/5	5/-	3/4	4/4	3/1	4/2	4/2	—	3/4	—

Col. = Colourless.

* Measured in seconds in a Redwood standard viscometer.

the oils purchased on the market are within the figures laid down by the Pharmacopœia, and, in fact, are between a maximum of 0·890 and a minimum of 0·860, the viscosities differ enormously. Thus we find in one case (to take the lowest) a viscosity of 65 when tested at 100° F., and in another (to take the highest) a viscosity of 296. A good working physiological viscosity would probably be in the neighbourhood of the figure of 105. It cannot be supposed for one moment that oils showing wide differences in regard to this physical factor can give identical therapeutic results. With a lower viscosity than 105, at 100° F. it will be found that the oil has a tendency to pass through the tract too quickly, its lubricating power is not effective, and it is rather violent in its action, and perhaps "leaks."

IMPURITIES FOUND ACCORDING TO THE BRITISH PHARMACOPŒIA.

The requirements in the Pharmacopœia in regard to impurities mean that as far as possible an inert oil or stable hydrocarbon of the real paraffin type should be prescribed. That description does not apply to several of the samples we purchased on the market. Amongst the 23 samples so obtained 4 showed the presence of sulphur compounds, 10 the presence of unsaturated hydrocarbons in varying amounts, while 5 showed distinct fluorescence. In regard to appearance 3 of the samples were of a light yellow colour, but all exhibited a neutral reaction when tested for acid or alkali.

A WIDE RANGE OF PRICES CHARGED.

There is, finally, another interesting point in connexion with these samples, and that is seen in the widely varying charges made for a given quantity of oil, and it does not appear that the paying of a high price is necessarily a guarantee of getting a pure or standard oil. Thus, calculating on our purchases the equivalent cost of a pint of 20 fluid ounces, we see that while a very pure oil was obtained entirely satisfying the requirements of the Pharmacopœia at 2*s.* 2*d.* per pint, another oil, which was obviously impure, cost 5*s.* a pint. In one case the price charged for the same quantity of oil was 7*s.*, but it is fair to add that this was a good oil. These great divergences in price show reasonable dealing in some instances, but an exorbitant demand in others.

CONCLUSIONS.

On many counts, therefore, it would appear that the supply of paraffinum liquidum to the public is not satisfactory, and it is desirable that steps should be taken to make it so. The Pharmacopœia standard of gravity is not sound in principle, and a standard of viscosity needs to be adopted, while the requirements as to general purity, colour, appearance, odour, and taste may well stand. In any case, when a B.P. article is demanded an oil should be supplied conforming with the official requirements, and that, as we have shown, is not always the case.

SAD DEATH OF A MEDICAL MAN.—Dr. G F. Nicholls, of Newcomin Lodge, Dartmouth, was accidentally drowned on the evening of Oct. 7th. He was returning home from seeing a patient when, owing to the darkness on the river front (where in accordance with the present restrictions there are no lamps lighted), he walked over the edge of the embankment. Dr. Nicholls, who received his medical education at the Birmingham Medical School, qualified L.R.C.P. & S. Edin. in 1880, graduating M.D. of Durham in 1900. He was highly respected in Dartmouth, and much sympathy is felt there for his widow.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been entered as Surgeons for temporary service in His Majesty's Fleet:—Dated Oct. 4th: Frederick James Fitzmaurice Barrington. Dated Oct. 6th: Abraham Cockcroft Barker.

ROYAL NAVAL VOLUNTEER RESERVE.

Arthur George Drake Pridham has been granted a temporary commission as a Dental Surgeon.

ARMY MEDICAL SERVICE.

Colonel Herbert J. Barratt, on completion of four years' service in his rank, is retained on the Active List, and to be supernumerary (dated Oct. 2nd).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Henry J. Fletcher is retained on the Active List, and to be supernumerary (dated Oct. 7th).

Frank Romer to be temporary Lieutenant-Colonel (dated Sept. 13th).

The undermentioned to be temporary Captains:—

Dated Sept. 15th: Wilfred Stephen Fox.

Dated Sept. 16th: Noel Dean Bardswell.

James Elrick Adler to be temporary Honorary Captain whilst serving with No. 7 British Red Cross (Allied Forces Base) Hospital (dated Oct. 7th).

The undermentioned temporary Lieutenants to be temporary Captains:—

Dated Sept. 11th: William E. M. Armstrong.

Dated Sept. 12th: William Lumley, Daniel J. Thomas, and William Kennedy-Taylor.

Dated Sept. 14th: Henry R. Knowles, Thomas L. Ingram, Walter H. Swaffield, and Gwilym James.

Dated Sept. 15th: Ernest C. Lindsay, George E. Neligan, Herbert A. Lake, Samuel C. R. Flaxman, Allan C. Hancock.

Dated Sept. 16th: John McI. Morgan, James McTurk, James Kirker, John S. Lloyd, William N. Kingsbury, George W. Lloyd, Herbert J. Rawson, Claude H. B. Booth, James D. G. Stewart, Edgar F. Edmunds, Harold G. Janion, Russell F. Wilkinson, Eustace C. Black, and William Griffith.

Dated Sept. 16th: Charles St. A. Vivian.

Dated Sept. 17th: Richard F. Bolt, Daniel S. Cooper, Cecil M. Jones, Richard B. Johnson, Alfred C. Jepson, William H. Parry, Hugh Pierce, and Henry C. D. Miller.

Dated Sept. 18th: Henry A. Lunn.

Dated Sept. 19th: George V. Bakewell, Frederick F. Middleweek, Valentine C. Martyn, David Y. Buchanan, Emanuel P. Scott, Edward L. Puddicombe, Murdoch M. Rodger, Henry C. Woodyatt, and William Ainslie.

Dated Sept. 20th: Gideon Walker, John F. Smith, William Moodie, and Thomas H. Body.

Dated Sept. 21st: Octavius de B. Marsh, Andrew Currie, Robert Hannah, Stanley Ritson, Alexander Lindsay, and Alexander L. Aymer.

Dated Sept. 22nd: Rudolph G. Abercrombie, Cornelius A. O'Driscoll, John S. Williamson, Herman W. Webb, Sydney H. Hay, Robert Marshall, Arthur A. Straton, William H. R. McCarter, Charles R. Smith, Samuel Gurney-Dixon, Alexander J. Will, Basil N. Murphy, Alan G. Bodman, George F. Hardy, Hugh F. Warwick, William W. Waller, Alexander M. Ross, the Hon. Lennox H. Lindley, and Lionel T. Wells.

Dated Sept. 23rd: Bartholomew J. Hackett, Christopher C. Court, Elston H. Lawson, and Frank Dallimore.

Dated Sept. 24th: Elliott G. Glenny and James L. Wilson.

Dated Sept. 25th: Daniel T. H. Croly.

Dated Sept. 26th: Charles E. Redman, Kenneth C. Middlemiss, Charles L. Spackman, Robert W. L. Todd, Morton Peto, William Brown, Allan N. Minns, and Alexander Bremner.

Dated Sept. 28th: John I. Johnson, Alexander C. Palmer, Alan H. Birks, and James L. R. Philip.

Dated Sept. 30th: Frederick B. Dreyer, Lindsay C. Smith, Arthur B. Appleton, Francis C. Macdonald, and George L. Grant.

The undermentioned to be temporary Lieutenants:—

Dated Sept. 4th: William Alexander Twigg.

Dated Sept. 15th: John Clemence Bawden, John Hope Potter, Alfred Edward Huckett, Herbert Malins, Cecil Herbert Winter Page, Arthur Evelyn Goldie, Frederick George Martin, William Core, James Harcourt Cecil Gatchell, Edward Thomas Jones, James McKail, and Frederick Bailey Manser.

Dated Sept. 16th: Lieutenant James Elvins McCartney (from the Worcestershire Regiment, Special Reserve), John Cuningham Bell, William Edmund Alexander Buchanan, Robert Pettigrew Kennedy, George Atkin Hayman, Richard John Aherne, Robert Noel Farrer, William Herbertson, Andrew James Ferguson, John Edward Rees, Eric William Craig, and Angus Hope Murch.

Dated Sept. 17th: Ernest Charles MacKay, Malcolm Edward Ball, Alfred Stirling Hendrie, Allan George Hamilton, and Philip Gettleson.

Dated Sept. 18th: John Joule and Richard James Cane.

Dated Sept. 19th: William Stanwell and Llewelyn Stanley Howard Glanville.

Major G. Horne relinquishes his temporary honorary commission on ceasing to be employed with the Australian Voluntary Hospital (dated Sept. 30th).

Major T. J. Horder relinquishes his temporary honorary commission on ceasing to be employed with No. 7 British Red Cross (Allied Forces Base) Hospital (dated Oct. 7th).

Captain Victor P. Hutchinson is placed on retired pay on account of ill-health (dated Oct. 8th).

The undermentioned temporary Lieutenants relinquish their commissions:—Dated Sept. 14th: James L. Lawry, John E. L. Keyes, Maurice Nicoll, and Vincent Glendinning. Dated Sept. 16th: George E. Beaumont and Patrick Cagney. Dated Sept. 23rd: Michael J. Hackett.

Temporary Lieutenants Jerome O'Flynn and John I. Langley relinquish their commissions on account of ill-health (dated Oct. 7th).

INDIAN MEDICAL SERVICE.

Colonel T. G. Dyson, I.M.S., to be Deputy Director of Medical Services, vice Colonel H. Hendley, I.M.S. (dated July 12th).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants to be Captains:—John D. MacCormack, Robert H. Williams, George H. Haines, Stanley B. King, John R. Crolius, Frederick McKibbin, Edmund Robinson, Arthur C. Bateman, and Thomas D. Inch (with seniority next below C. N. Gover).

William Wallace Blair to be Lieutenant (on probation).

Lieutenants (on probation) Alan R. Laurie and John T. Scrogie are confirmed in their rank.

TERRITORIAL FORCE.

Royal Army Medical Corps.

London Sanitary Company: To be Captains: Captain Charles A. Spooner (from Attached to Units other than Medical Units) and Lieutenant Frederick J. J. Ney.

Eastern General Hospital: Thomas Shirley Hele (late Captain, Unattached List for the Territorial Force) to be Major (temporary) on the permanent personnel. Ernest Newton Hoffmeister to be Lieutenant.

Northern General Hospital: Major Frederick C. Pybus is restored to the Establishment. Captain Alfred H. Horsfall, D.S.O., to be temporary Major, and seconded for duty with an ambulance. John William Walker to be Captain.

London (City of London) General Hospital: Leslie Norman Reece to be Lieutenant.

Southern General Hospital: Samuel Ernest Whitnall to be Lieutenant.

Wessex Casualty Clearing Station: Captain Frank A. Roper, from Wessex Field Ambulance, to be Captain. Thomas James Wright to be Lieutenant.

London Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: Ernest G. T. Poynder and Herbert E. Roaf.

Home Counties Field Ambulance: Major George T. Willan to be temporary Lieutenant-Colonel.

North Midland Field Ambulance: The undermentioned Lieutenants to be Captains: John W. Thomson, Frank P. Sturm, and Hubert Pinto-Leite.

South Midland Field Ambulance: Lieutenant James G. McLannahan to be Captain. George Henry Hart (late Captain, 1st Volunteer Battalion, Royal Warwickshire Regiment) to be Captain (temporary).

South Midland Mounted Brigade Field Ambulance: Lieutenant Henry J. Blackler to be Captain.

Highland Field Ambulance: The undermentioned Lieutenants to be Captains: James A. Morris, James E. G. Thomson, Charles A. Whyte, and George Davidson.

Sanitary Service: The undermentioned Captains to be Majors: Davy T. Belding, David Rennet, Robert A. Dunn, John Murray, William B. Barclay, William Butler, Arthur M. N. Pringle, Marcus G. Yunge-Bateman, Harold Scurfield, and Duncan Forbes.

Eastern Mounted Brigade Field Ambulance: Lieutenant James Lamberton to be Captain.

East Anglian Field Ambulance: The undermentioned Lieutenants to be Captains: Thomas V. Oldham, Laurence H. Hutchins, Hugh F. G. Hall, Ambrose C. Wilson, Harry Whitaker, James L. M. Symms, William Kingdon Legassick, William T. Crawford, George H. Harper-Smith, Raymond H. Swindells, and Edward C. Hobbs.

Lowland Field Ambulance: James Wilfred George Hewat Riddel (late Second Lieutenant, Lowland Brigade, Royal Field Artillery) to be Lieutenant.

West Riding Field Ambulance: Lieutenant Wallace W. Adamson to be Captain.

South Midland Casualty Clearing Station: Charles William Tresidder Baldwin to be Lieutenant.

Welsh Casualty Clearing Station: The undermentioned Lieutenants to be Captains: Charles Nyhan, John J. E. Biggs, and John H. Robinson.

Scottish Horse Mounted Brigade Field Ambulance: Lieutenant Frederick G. Harper to be Captain.

South Wales Mounted Brigade Field Ambulance: Lieutenant Herbert M. Pentreath to be Captain.

East Lancashire Field Ambulance: Lieutenant Leonard E. H. R. Barker to be Captain.

West Lancashire Field Ambulance: The undermentioned Lieutenants to be Captains: Robert G. Wills, Sandys J. C. Holden, Samuel McCausland, Thomas Courtenay Clarke, Harold Seddon, William Evans Graham, and Frederick Ryan.

Welsh Field Ambulance: The undermentioned Lieutenants to be Captains: Arvor Jones, Joseph M. Fonseca, John Clarke, Vaughan Bateson, John Wallace, Arthur F. B. Shaw, Barry K. T. Collins, Evan D. Richards, Hamilton E. Quick, Peyton T. Warren, William Rutherford, William J. Richards, and George Young.

Northumbrian Casualty Clearing Station: The undermentioned Lieutenants to be Captains: Robert W. Smith and Frederick S. Walker.

Attached to Units other than Medical Units.—The undermentioned Lieutenants to be Captains: Alastair R. Grant, John Morris, Theophilus W. Morcom-Harneis, Sidney H. Clarke, William George, Archibald Cambell, Frank Clayton, Oswald L. Scarborough, Alexander K. Maclachlan, James G. Hayes, Henry F. J. Graves, Joseph L. Baskin, Reginald D. Moore, James G. F. Hosken, Robert G. McD. Ladell, Charles F. Searle, Frederick C. Kempson, Andrew P. Granger, James M. Heron, George J. M. Martin, Arthur E. Bullock, Alfred H. T. Andrew, Berkeley N. Ash, William J. Phillips, Leonard West, William J. H. Davis, William L. Burgess, John G. Morgan, Arthur J. Friedlander, Michael Brannan, Ralph A. Burditt, Hugh A. Sandiford, John R. B. Russell, and Frank Jeffree. To be Lieutenants: Donald Grant Dingwall, Wilfred Winnall Horton, and Francis Field Cunningham Jaggar.

TERRITORIAL FORCE RESERVE.

Royal Horse Artillery: Surgeon-Major George Mackie, from the Shropshire Royal Horse Artillery, to be Surgeon-Major.

Major John E. W. McFall, from West Lancashire Field Ambulance, to be Major.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—The annual meeting of the Royal Academy of Medicine in Ireland was held on Oct. 8th at the Royal College of Surgeons, Dublin. The annual report stated that there were last session 149 Fellows, 16 Members, and 5 Student Associates, compared with 162 Fellows, 21 Members, and 4 Student Associates in the previous year. The balance to credit was £43 13*s.* 9*d.*, as against £75 8*s.* 9*d.* at the end of the previous session. The Council recorded with regret the deaths of three Fellows—Sir John Lentaigne, Dr. Michael McHugh, and Mr. J. Wybrants Olpherts. Dr. R. D. Purefoy was elected President of the Academy for the ensuing triennium. He is the ex-President of the Royal College of Surgeons in Ireland and a former Master of the Rotunda Hospital. The following Presidents of sections were elected for the present session: Medicine, Professor J. A. Lindsay; Surgery, Professor F. Conway Dwyer, President, R.C.S. Irel.; Obstetrics, Dr. Gibbon FitzGibbon; Pathology, Professor E. J. McWeeney; Anatomy and Physiology, Professor E. J. Evatt; State Medicine, Dr. W. A. Winter.

A VETERAN ELGIN PRACTITIONER.—Dr. James William Norris Mackay, the oldest medical practitioner in Elgin, died on Sept. 26th, aged 85. He was educated at Elgin Academy, at King's College, Aberdeen, and studied medicine at Edinburgh, where he took the M.D. degree in 1853. For some 30 years he was secretary and treasurer of the northern branch of the British Medical Association which was founded as a result of a meeting between himself and Dr. William Bruce, both having previously founded local medical societies. On his retirement from these offices in 1895 he was presented with his portrait in oils, the work of Sir George Reid. Dr. Mackay, who was late medical officer to the district lunatic asylum and medical officer of health of Elgin, had many friends, Dr. Bruce being among the oldest of them. His skill and attention as a physician greatly endeared him to a wide circle of patients.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7577 births and 5198 deaths were registered during the week ended Saturday, Oct. 9th. The annual rate of mortality in these towns, which had been 13·8, 13·5, and 14·0 per 1000 in the three preceding weeks, rose in the week under notice to 14·9 per 1000 of their aggregate population estimated at 18,136,180 persons at the middle of last year. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 12·3, against a corresponding rate of 12·4 per 1000 in London. The death-rate last week ranged from 6·6 in Gillingham, 6·8 in Enfield, 7·3 in Ealing, 7·6 in Hornsey and in Newport (Mon.), and 8·0 in Ilford, to 19·2 in Rotherham, 19·8 in Sunderland, 20·2 in West Hartlepool, 21·1 in Dudley, and 21·5 in Liverpool.

The 5198 deaths from all causes were 319 in excess of the number in the previous week, and included 886 which were referred to the principal epidemic diseases, against numbers rising from 802 to 973 in the three preceding weeks. Of these 886 deaths, 717 resulted from infantile diarrhœal diseases, 64 from diphtheria, 37 from whooping-cough, 31 from scarlet fever, 24 from measles, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·5, or 0·3 per 1000 less than in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 638, 785, and 808 in the three preceding weeks, fell to 717 last week, and included 192 in London, 62 in Liverpool, 37 in Birmingham, 30 in West Ham, 28 in Manchester, 23 in Sheffield, and 21 in Hull. The deaths attributed to diphtheria, which had been 54, 42, and 45 in the three preceding weeks, further rose to 64 last week, of which 15 were registered in London, 6 in Birmingham, and 4 in Stoke-on-Trent. The fatal cases of whooping-cough, which had been 55, 47, and 48 in the three preceding weeks, fell to 37, and included 10 in London and 3 in Liverpool. The deaths referred to scarlet fever, which had been 14, 18, and 27 in the three preceding weeks, further rose to 31, of which 6 occurred in Liverpool and 3 each in London, Wigan, and Oldham. The deaths attributed to measles, which had been 26, 22, and 37 in the three preceding weeks, fell to 24 last week, and included 4 each in Bradford and Sheffield. The fatal cases of enteric fever, which had been 15, 14, and 8 in the three preceding weeks, rose to 13, of which 2 were registered in Tynemouth.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily increased from 2360 to 2758 in the six preceding weeks, further rose to 2933 on Saturday last; 468 new cases were admitted during the week, against 429, 372, and 382 in the three preceding weeks. These hospitals also contained on Saturday last 1504 cases of diphtheria, 61 of measles, 53 of enteric fever, and 9 of whooping-cough, but not one of small-pox. The 1365 deaths from all causes in London were 97 in excess of the number in the previous week and corresponded to an annual death-rate of 15·8 per 1000. The deaths referred to diseases of the respiratory system, which had been 151, 150, and 160 in the three preceding weeks, further rose to 185 in the week under notice, and were 10 in excess of the number registered in the corresponding week of last year.

Of the 5198 deaths from all causes in the 96 towns, 198 resulted from different forms of violence and 393 were the subject of coroners' inquests, while 1570 occurred in public institutions. The causes of 41, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Sheffield, Leeds, Bristol, West Ham, and in 74 other smaller towns. Of the 41 uncertified causes, 11 were registered in Birmingham, 6 in Liverpool, 4 in Gateshead, 3 in London, and 2 each in Coventry, Warrington, Bolton, and Sunderland.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 963 births and 733 deaths were registered during the week ended Saturday, Oct. 9th. The annual rate of mortality in these towns, which had been 13·7, 14·3, and 14·3 per 1000 in the three preceding weeks, rose to 16·3 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 13·6, or 1·3 per 1000 higher than the corresponding rate in the large English towns. The annual death-rate during the week ranged from 11·0 in Leith, 12·3 in Aberdeen, and 12·4 in Edinburgh, to 19·8 in Falkirk, 23·4 in Greenock, and 25·0 in Perth.

The 733 deaths from all causes were 89 in excess of the number in the previous week, and included 102 which were referred to the principal epidemic diseases, against 98 and 79 in the two preceding weeks. Of these 102 deaths, 54 resulted from infantile diarrhœal diseases, 21 from scarlet fever, 12 from diphtheria, 10 from measles, 4 from whooping-cough, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·3, against 2·5 per 1000 in the large English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 41, 65, and 48 in the three preceding weeks, rose to 54 last week, of which 26 were registered in Glasgow, 7 in Dundee, 5 in Greenock, 4 in Aberdeen, and 3 each in Edinburgh and Perth. The deaths attributed to scarlet fever, which had been 13, 14, and 10 in the three preceding weeks, rose to 21, and comprised 7 in Glasgow, 5 in Aberdeen, 4 in Dundee, 3 in Paisley, and 2 in Edinburgh. The fatal cases of diphtheria, which had been 9, 10, and 7 in the three preceding weeks, rose to 12, and included 2 each in Glasgow, Edinburgh, and Dundee. The deaths attributed to measles, which had been 15, 6, and 9 in the three preceding weeks, were 10 last week, of which 4 occurred in Glasgow and 3 in Edinburgh. The 4 deaths referred to whooping-cough, of which 2 were registered in Falkirk, were slightly below the average in recent weeks. The fatal case of enteric fever was recorded in Dundee.

The deaths referred to diseases of the respiratory system, which had increased from 56 to 93 in the five preceding weeks, further rose to 116 in the week under notice, and were 32 above the number registered in the corresponding week of last year. The deaths attributed to violence numbered 26, against 27 and 21 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 517 births and 373 deaths were registered during the week ended Saturday, Oct. 9th. The annual rate of mortality in these towns, which had been 16·8, 16·4, and 18·3 per 1000 in the three preceding weeks, fell to 16·0 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 14·9, against corresponding rates of 12·3 and 13·6 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 18·7 in Dublin (against 15·8 in London and 17·5 in Glasgow), 16·3 in Belfast, 19·0 in Cork, 17·7 in Londonderry, 8·1 in Limerick, and 5·7 in Waterford, while in the 21 smaller towns the mean rate did not exceed 11·8 per 1000.

The 373 deaths from all causes were 53 below the number in the previous week, and included 54 which were referred to the principal epidemic diseases, against numbers rising from 39 to 72 in the four preceding weeks. Of these 54 deaths, 37 resulted from infantile diarrhœal diseases, 5 from scarlet fever, 4 each from enteric fever and whooping-cough, 3 from measles, and 1 from diphtheria, but not one from small-pox. The annual death-rate from these diseases was equal to 2·3, against corresponding rates of 2·5 and 2·3 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had increased from 30 to 60 in the four preceding weeks, fell to 37 last week, of which 25 occurred in Dublin, 8 in Belfast, and 3 in Londonderry. The 5 deaths attributed to scarlet fever, all of which occurred in Belfast, were 2 in excess of the weekly average recorded last quarter. The fatal cases of whooping-cough, which had been 7, 7, and 5 in the three preceding weeks, were 4 last week, and included 2 in Londonderry. The deaths referred to enteric fever, which had been 2, 2, and 3 in the three preceding weeks, were 4 last week, but showed no excess in any particular town. Of the 3 deaths from measles, 2 were registered in Dublin and 1 in Belfast. The fatal case of diphtheria occurred in Belfast.

The deaths referred to diseases of the respiratory system, which had been 48, 47, and 49 in the three preceding weeks, were 47 in the week under notice. Of the 373 deaths from all causes, 102, or 27 per cent., occurred in public institutions, and 5 resulted from different forms of violence. The causes of 15, or 4·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 English towns the proportion of uncertified causes did not exceed 0·8 per cent.

PRESENTATION TO A MEDICAL PRACTITIONER.—Dr. W. D. Murray, of West Side, Clapham Common, has been presented with a clock by a number of patients as a mark of their appreciation of his medical services. At the same time Mrs. Murray was presented with a gold watch and bracelet.

Correspondence.

"Audi alteram partem."

THE WAR REFUGEES' DISPENSARY: THE NEED FOR MEDICAL ASSISTANCE.

To the Editor of THE LANCET.

SIR,—For nearly a year, with the express sanction of the Government, the committee of the War Refugees' Dispensary, 265, Strand, W.C., has been providing domiciliary medical attendance for refugees residing in the London area. It has been able to do this solely by the devoted and enthusiastic coöperation of Belgian doctors, themselves refugees. Owing, however, to various causes the number of Belgian medical practitioners available for this work has diminished almost to vanishing point, at the moment when the colder weather is daily increasing the calls for domiciliary attendance, and the committee finds itself confronted with many more such appeals than it is able to meet. It has occurred to it that even in these days of unusual stress there are probably many English practitioners, with a sufficient knowledge of French, who would be willing, if not eager, to help it by undertaking, in case of need, to visit sick refugees living in their immediate neighbourhood. It is not likely that any doctor would be asked to undertake more than two or three such cases at a time. The committee does not offer any remuneration. All its work up to the present date has been entirely gratuitous, but it would pay for all necessary medicines and appliances. The areas in which help is most needed are those lying to the south of the river, in the East End, and in the Finsbury and Hammersmith districts. The committee would be glad to receive the names of any doctors willing to help it, addressed to the War Refugees' Dispensary, 265, Strand, W.C.

I am, Sir, yours faithfully,

J. H. PHILPOT,
Chairman of Committee, War Refugees' Dispensary.

Oct. 12th, 1915.

UNILATERAL NERVOUS FURRING OF THE TONGUE.

To the Editor of THE LANCET.

SIR,—The article by Sir James Goodhart on Nervous Furring of the Tongue and Disturbed Taste in your issue of Sept. 25th recalls to my mind another curious type of nervous furring of the tongue—namely, that in which there is a lesion of the third division of one fifth nerve. In two such cases—one of them with a small gumma upon the fifth nerve, the other with a pea-sized nodule of secondary growth upon it in a case of primary carcinoma of the stomach—one has been much struck by the fact that half of the tongue has been perfectly clean; the other half, corresponding to the side of the lesion of the fifth nerve, has been thickly coated with yellowish-white fur. At the time one thought that the fact of the tongue being anæsthetic in its furred half was sufficient to account for the presence of this unilateral furring, but thinking of the cases again one cannot help feeling that there was a neurotrophic factor over and above the mere anæsthesia. Had the accumulation of food particles and débris in the anæsthetic side of the mouth been the sole cause of the fur the latter would not, one would think, be limited by a well-defined margin

corresponding to the mid-line of the dorsum of the tongue, as was the case in the patients referred to; had the anæsthesia and deficient cleansing movements alone been responsible for the fur the distribution of the latter would, one would have expected, have been irregular, though mainly confined to the affected side. In the cases in question, if one had divided the tongue in the median line with a knife one would have had a completely clean half on the one side and a completely furred half on the other, with a sharp line of demarcation between the two.

One feels that in these cases, over and above the presence of anæsthesia, there must have been the factor of nerve influence, or perhaps rather the lack of nerve influence, in the formation and distribution of the strictly unilateral fur; and though they are of a different type from that spoken of by Sir James Goodhart in his article they tend to support the view that there is such a thing as nervous furring of the tongue as distinct from furring which results from disorders in other parts of the body. I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 11th, 1915. HERBERT FRENCH.

MASSAGE IN THE AFTER-TREATMENT OF THE WOUNDED.

To the Editor of THE LANCET.

SIR,—The paper on this subject by Dr. J. B. Mennell in your issue of Oct. 2nd is so interesting and suggestive that perhaps you will allow me to make a few remarks upon some of the subjects broached by him? Most of those connected with massage must share the doubt, expressed in the paper, whether our country is doing the very best that our wounded soldiers deserve. There are many trained operators whose services would be useful, but who cannot afford to give gratuitous services or work for a sum that will not maintain them. On the other hand, many with quite insufficient training are employed. The case cited by Dr. Mennell of the lady who had learned "massage" in 12 lessons is an instance. I fear this state of things is hard to remedy until the State, through the General Medical Council, takes over the examination in massage. In my opinion, it should not be left to private schools or a trade guild to grant a certificate.

The lack of coördination between the surgical staff and the massage operator is not fair towards the patient. Directions usually come through the sister or nurse, and the masseur has no opportunity of gaining information from the house surgeon as to what the case actually requires. The label "massage" really conveys nothing, and, as Dr. Mennell so justly implies, the masseur has to diagnose the case and formulate the manual treatment. This does not apply to the particular military hospital where I am working, because the notes of the case are open to masseurs, but it is undoubtedly very general. The average of eight, or possibly ten, treated in two hours is, I imagine, based on surgical practice only. If two or three of the cases are "general" or "back and legs," as so often happens in the "buried in trench" or "shell-shock" cases, such a moderate average would be hard to maintain.

Dr. Mennell's remarks on the avoidance of pain should be read by every masseur, male or female, in the country. The idea that massage is useless unless it hurts is so general (even amongst medical men, I fancy) that it is difficult to eradicate. As a rule, even the patients believe and the temperament of the patient must be carefully regarded. If one can make an exception it is in those old septic joints, with stiffness due to contraction and matting, the owners of which will cheerfully undergo any amount of pain to gain improvement.

The late Dr. Fletcher Little's teaching at the London School of Massage was always strongly opposed to the "brutal" methods too often employed. He used to dwell upon the "loving, lingering stroke," and it appeared to me that he almost forestalled the teaching of M. Lucas-Championnière.—I am, Sir, yours faithfully,

A. GREENWOOD, L.R.C.P. Lond., M.R.C.S.

London, Oct. 9th, 1915.

To the Editor of THE LANCET.

SIR,—I was much interested in Dr. J. B. Mennell's article in your issue of Oct. 2nd on this subject. After 20 years' experience of the treatment of patients by massage I quite agree with him that at the present time a great deal of harm instead of good is being done by too rough methods, especially those practised by masseurs not taught in England. I have had numbers of patients among the wounded who complained that the rough usage they received made them dread the visit of the masseur. Dr. Mennell's suggestion that the treatment should, if possible, be carried out under the direct supervision of a medical man is excellent. No "breaking down of adhesions" which do not exist is then likely to be attempted. I would strongly urge all surgeons to see that the after-care treatment by massage is carried out whenever possible under direct medical supervision.—I am, Sir, yours faithfully,

CLAUDE ST. AUBYN-FARRER.

Harley-street, W., Oct. 5th, 1915.

SUCCUS ALLII IN THE CONTROL OF SUPPURATION IN WOUNDS.

To the Editor of THE LANCET.

SIR,—An article on the above subject by Dr. A. D. Serrell Cooke and Mr. V. Gabriel in THE LANCET of Sept. 11th has just come under my notice. I have been using preparations of allium sativum in the treatment of suppurating wounds and foul ulcers, &c., for the past 15 years continuously with the greatest satisfaction. The succus allii when used at the strength mentioned—viz., 1 in 4—will not injure any tissues, even if applied for a very long time. It acts as a blister if used strong, but at the above-mentioned strength is absolutely harmless. A little smarting for a few minutes when first applied is rather beneficial than otherwise, and it has been my custom to endeavour to regulate the strength of the lotion by finding at what strength it brought about a little tingling or smarting when applied, but this is by no means constant and must be found for each case individually. A strength of 1 in 4 is, however, a good all-round strength for general purposes. No prolonged smarting should be allowed or blistering will occur. The human tissues can be saturated with oleum allii without injury. It is certainly the best intestinal antiseptic known to me. It is fatal to a large number of bacilli which invade the human body. It is a veritable sheet anchor in many fevers. I have written much about it in my book, "The Treatment and Cure of Tuberculosis and Lupus with Oleum Allii" (Baillière, Tindall, and Cox), as well as in the medical journals, and I am therefore especially gratified to read of the excellent corroborative results which have been obtained by Dr. Cooke and Mr. Gabriel.—I am, Sir, yours faithfully,

WM. C. MINCHIN, M.D.

Herstmonceux, Sussex, Oct. 7th, 1915.

THE DURATION OF GESTATION IN WOMAN.

To the Editor of THE LANCET.

SIR,—Under ordinary physiological circumstances menstruation not only becomes suspended in consequence of the occurrence of fertilisation but is held in abeyance by a continuance of the pregnant state, and on this account it has from time immemorial practically been found convenient to reckon the date of parturition in any given case of pregnancy from the date of the cessation of the last menstrual period. Because of this we must not, however, assume that we are justified for one moment in believing either that fertilisation and the inception of gestation are contemporary phenomena or that the duration of pregnancy and the duration of gestation are indiscriminate expressions implying the same thing.

I have already on previous occasions asserted that fertilisation may take place at any time during the intermenstrual period except during the two or three days immediately preceding menstruation, and we have good reason to believe that in every case where there is ordinary prolific power, only a few hours elapse in a fruitful intercourse between the time of insemination and the occurrence of fertilisation. It is well known that after one fruitful covering the domestic hen will lay from 10 to 15 eggs, the majority of which will be fertile, and we also know that the first fertile egg is invariably laid in from 42 to 48 hours after the mating. Here we have proof that the spermatozoa evince no disposition to loiter in the genital canal of the female, but are attracted with all speed to their goal, and that they accomplish their task in all cases in an incredibly short time. Again, I have, on the basis of incontrovertible clinical facts, shown that the ovum which is fertilised is never that of a past but always that belonging to an oncoming menstruation, and that the chemical reaction which arouses the metabolic changes coincident with gestation is only called into being during the two or three days prior to the time when the first suspended menstruation would otherwise in the ordinary course of events have asserted itself and made its appearance. From the time of Hippocrates it has, it would seem, been customary to reckon pregnancy in the human female as completing itself in ten lunar months, or 280 days, these 280 days being numbered from the first day of the last menstruation. Now, whatever the menstrual cycle in the time of Hippocrates may have been, we know that to-day the period extending from the beginning of one menstruation to the beginning of the succeeding menstruation embraces in different women, and even in the same woman at different times, a variable number of days, and may reveal a discrepancy varying from 1 to 11 or even more days. Under such circumstances it cannot therefore be so very surprising that the persistence during these many centuries in the attempt to reckon the probable date of parturition either from the beginning or the ending of the last menstruation should have proved otherwise than unsatisfactory, not only because of the aforesaid variability in the length of any intermenstrual period, but because the calculation has been based upon a fact which is not inherently related to the phenomenon in question.

If our knowledge of the duration of gestation is to be advanced materially it can only be done by striking an average from a group of a hundred or more primiparæ who have conceived after marriage without having menstruated after entering upon the nuptial state. The facts essential to the solution of this all-important scientific problem are the date of the cessation of the menstrual period prior to marriage, the date of the marriage, the date of the confinement, the usual number of "the unwell" days, and the usual length of the menstrual cycle in days reckoned from the beginning of one menstruation to the beginning of a succeeding menstruation.

I am, Sir, yours faithfully,

JAMES OLIVER, M.D. Edin., F.R.S. Edin.,
Gynæcologist to the Hospital for Women, London.
Harley-street, W., Sept. 30th, 1915.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination held on Sept. 28th, 29th, and 30th, and Oct. 1st, the following candidates were approved in the undermentioned subjects:—

Chemistry and Physics.—John Paul de Silva, London Hospital; Gwilym Pennant Evans, St. Mary's Hospital; Kate Glyn-Jones, Bedford College for Women; Ahmed Hamid, Middlesex Hospital; Sidney Gilbert Harrison, St. Bartholomew's Hospital; Joseph Arnold Hawkridge, St. Mary's Hospital; Wilfrid Eric Howell, University College, Cardiff; Mohammed Abdul Razzak Khalifa and Gerald Baeyertz Kirkland, Guy's Hospital; Emilia Bertha Marie Krause, London School of Medicine for Women; James Lucius Camillo O'Flyn, University College, Cardiff; Arthur Reginald Paul, Liverpool University; George Marston Trist, Charing Cross Hospital and King's College; and John Stanley White, South of England College of Pharmacy.

Chemistry.—Frank Barker, King's Colle e; and Hitchon Sester Chadwick, Manchester University.

Physics.—Anna Bridget Broman, London School of Medicine for Women; Louis Dinerstein, London Hospital; Denis Paul Guilfoyle, St. Bartholomew's Hospital; Eric Hardy, Guy's Hospital; Paul Lindsey, St. Bartholomew's Hospital; Tudor David Llewelyn, University College, Cardiff; Daniell Maximos, King's College; Griffith Wynn Vaughan Parry, University College, Cardiff; Edgar Lewis Jones Reason, Technical College, Swansea; Guy Kingham Reeves, Guy's Hospital; Robert Henry Roe, Leeds University; Alfred George Sykes, Sheffield University; and Geoffrey Bathe Withers, London Hospital.

Biology.—Stanley Ackroyd, Leeds University; Alexander Benjamin Aldred, South-Western Polytechnic; Cyril Bernard Dix and John Edwin Hardie Duckworth, Guy's Hospital; Alec Everett Fergusson, St. Thomas's Hospital; Robert Douglas French, London Hospital; Stanley Godsill, Guy's Hospital; Emilia Bertha Marie Krause, London School of Medicine for Women; Reginald Oladipo Lahanmi, University College; Kathleen Maria Boyce McArthur, Newnham College; David Mackay, Charing Cross Hospital and King's College; Vernon Arthur Newton, Birmingham University; Hugh Clayton Randall-Stevens, St. Thomas's Hospital; and Frank Arthur Smorfitt, Leeds University.

At the quarterly examination in Practical Pharmacy held on Oct. 7th the following candidates were approved:—

Fanzi Fareed Abdullah, St. Mary's Hospital; Herbert Archer, Bristol University; Henry Hamilton Bailey, London Hospital; Edgar Scott Bowes, Guy's Hospital; Henry Carter, St. Thomas's Hospital; Kevin Robert Chapple, St. Bartholomew's Hospital; George Wilfred Coombes and Frank Philip Gilbert de Smidt, London Hospital; Abdel Aziz Hassan El-Zeneiny, Cairo and London Hospital; Daniel Davies Evans, Cambridge University and St. Bartholomew's Hospital; Murray Dudley Evans, London Hospital; Edwin Allan Thomas Green, L.D.S. Eng., Manchester University; Eric Blanford Hickson, University College Hospital; Herbert Meade Hobson, London Hospital; Lionel Snowdon Holmwood, Cambridge University and Middlesex Hospital; Ernest Gwyn Howell, Cardiff and St. Thomas's Hospital; John Morgan Hughes and John Walter Hulme, Middlesex Hospital; John Wilkinson Davis Hyde, University College Hospital; Thomas Henry Jackson, Charing Cross Hospital; Reginald Fitzroy Jarrett, London Hospital; Frederick Nicholas Jayewardene, Ceylon Medical College and Middlesex Hospital; Harold Robert Victor Thomas Lauder, St. Bartholomew's Hospital; Eldon Munro Litchfield, Guy's Hospital; Douglas Loughlin, University College Hospital; Arthur Neil McMillan, Middlesex Hospital; William John May, London Hospital; Palliyaralialage Don Jeronis Milanius, Ceylon Medical College; Lionel Alexander Burke Moore, L.D.S. Eng., Guy's Hospital and private study; Wilfrid Oats, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Edmund Jacobez Papenfus, St. Thomas's Hospital; Edward Rowley Peirce, Birmingham University; William Irving FitzGerald Powell and Jagan Nath Puri, London Hospital; Khurshedjee Jamsedjee Rustomjee, Liverpool University; Robert James Saunders, London Hospital; John Aylmer Tippet, St. Thomas's Hospital; and Harry Cecil Craven Veitch, University College Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the Preliminary Science Examination for the Licence in Dental Surgery held on Sept. 28th and 30th, and Oct. 1st, the following candidates were approved in the undermentioned subjects:—

Chemistry and Physics.—William Downs and Joseph Goldberg, Royal Dental Hospital; Helen Pattie Clara Mayo, London School of Medicine for Women; Reginald George Wolfe Parry, Birkbeck College; and Hubert John Sanders and Frederick Henry Woolley, Bristol University.

Chemistry.—Lilian Forbes, Birkbeck College; Thomas Edward Hoggins, Birmingham University; Michael Miliaressis, University of Athens and Royal Dental Hospital; and Francis John Myers, Hull Technical School.

Physics.—Ronald Francis Binns, Birkbeck College; Leonard Henry Buchan, Bristol University; Harold Arthur Coysh and Humphry Bryan Thomasson Hope, Royal Dental Hospital; Herbert Myers Marshall, Technical College, Sunderland; Robert Cyril May, Westminster School; Herbert Shires Murray, Guy's Hospital; Arthur Douglas Ray, Salford Royal Technical Institute; and Robert Thorburn, Royal Dental Hospital.

UNIVERSITY OF GLASGOW.—The following results of examinations at this University are announced:—

DEGREES OF M.B. AND CH.B.

The following have passed with distinction in the subjects indicated:—

Botany.—John William Stewart Blacklock, Archibald Joseph Cronin, Thomas Fletcher, Andrew Yuill Pollok Johnston, Frederick M'Elwee, and Gilbert Paterson.

Zoology.—Arthur Anderson.

Physics.—Alan Percy Agnew, James Caddies, Elizabeth Pace Cameron, Archibald Joseph Cronin, William Milroy Kennedy, John Kirk, M.A., B.Sc., James M'Farlane, Gilbert Paterson, Marguerite Linck Sclanders, Herbert James Sheppard, Noel Eustace Stone, and William Lees Templeton.

Anatomy.—George Macfeat Wishart.

Physiology.—George Macfeat Wishart.

Materia Medica and Therapeutics.—Jules Steinmetz Martin, M.A.

Pathology.—William Ralston Duncan Hamilton, Jules Steinmetz Martin, M.A., and Mary MacLean Weir, M.A.

Midwifery.—Noah Morris, B.Sc.

The following have passed in the subjects indicated: B., botany; Z., zoology; P., physics; C., chemistry:—

Alan Percy Agnew, B., P.; John Smith Aitken, C.; Walter Ramsay Allan, B., Z., P., C.; William Allan, Z., P.; Daniel Edwin Alley, P., C.; Arthur Anderson, Z., P.; Alexander Baird, B., P.; James Baird, B., P.; Adam Barr, B. P.; Alexander Mitchell Beaton, B., P.; Alexander Kidd Begg, B., P.; Alexander Ronald Black, B.; John William Stewart Blacklock, B., P.; Alexander Lothian Brough, B., P.; Hamilton Brown, B., P.; James Eadie Brown, B., Z., P.; Murdoch Brown, B., P.; George Frederic Cables, B., P., C.; James Caddies, B., P.; Alister Campbell, B., P.; Donald Stewart Campbell, P., C.; James Gibson Campbell, B., P.; Alexander Chisholm, B., P.; Horace Collingbourne, Z., P.; John Gilchrist Coltart, B., P.; Archibald Joseph Cronin, B., P.; Alexander Smith Dick, B., P.; Eric George Alexander Don, B., Z., P., C.; Peter Alexander Faichney, B., P.; Robert Fletcher, M.A., B., P.; Thomas Fletcher, B., P.; Colin Macphail Forbes, B. P.; William Armour Galbraith, B. P.; Francis Denis Gillespie, B., P.; George Garlach Graham, B., Z., P.; Gerald Francis Graham, B., P.; James Alexander Moore Hall, B., Z., P., C.; John Forrest Hamilton, B., P.; William Mason Hamilton, B.; Robert Gold Howat, B., P.; David Imrie, B., P.; George Jamieson, B., P.; Andrew Yuill Pollok Johnston, B., P.; Samuel Hamow Wolf Kamerasse, B., Z., P., C.; Thomas Kemp, B., C.; Ian Gordon Kennedy, B.; Robert Kennedy, B., P.; William Milroy Kennedy, B., P.; John Kirk, M.A., B.Sc., B., P.; Alexander Adam Kirkland, C.; Daniel Lamont, B., P.; John Lavelle, B., P.; James Burnett Lawson, B., P., C.; James Edward Wilson Lee, P., C.; John Leishman, M.A., B., P.; Douglas Marshall Lindsay, C.; David Logan, B., P.; George Alexander Lowe, B., P.; Alexander Lennox M'Adam, B., P.; George Hutton Macartney, B., P.; Henry John M'Bride, B., P.; Alexander Mitchell M'Clure, B., P.; Duncan Macdiarmid, B., P.; Francis M'Donald, B., Z., P., C.; Roderick Macdonald, B.; Frederick M'Elwee, B., P.; James Macfarlane, B., P.; Samuel Wilson M'Ghee, B., Z., C.; William M'Kendrick (Innerleithen), B., P.; William M'Kendrick (Glasgow), B., P., C.; Donald Mackenzie, B., Z., P., C.; Kenneth Mackenzie, B., P.; Alexander Henderson M'Lean, C.; William Henry M'Lish, B.; Joseph Patrick M'Millan, B., P.; Peter MacMurray, B., P.; Joseph Craig M'Naught, B., P.; Roderick Montague Macpherson, B., P.; Alexander M'Callum Macqueen, B., P.; Farquhar M'Vean, B., Z., P., C.; Archibald M'Whinney, B., P.; Robert Mair, B., P.; Maung Maung, B.; John MacKean Maxton, B., P.; Charles Melville, B., Z., P.; James Bennie Morrison, B., Z., P.; Frederick James Newall, B., P.; George Strachan Park Noble, B., P., C.; Archibald Little Orr, B., P.; Gilbert Paterson, B., P.; William John Payne, B., P.; Wolf Rabinovitch, B., P.; Peter Crawford Rankin, B.; James Reid, B., P.; Andrew Morton Robertson, B., P.; Joseph Sachs, B., P.; Archibald Morton Sanders, B., P.; Ian MacRae Sandilands, B., P.; John Shanks, B., P.; Herbert James Sheppard, B., P.; James Sneddon, B., P.; Francis Cyril Speechly, B., Z., P.; Donald M'Dougall Sproull, B., P.; Samuel Maxwell Steel, B., Z., P., C.; Archibald Vernon Steen, B., P.; William Howie Stevenson, B., P.; Noel Eustace Stone, B., P.; Alexander Strang, B., P.; Hugh Sutherland, B., P.; William Lees Templeton, B., P.; William Robert Paton Templeton, B., P., C.; David Wolfe Tobias, B., P.; John Cunningham Watt, C.; John Whitelaw, M.A., B., P.; Andrew Wilson, B., P.; James Hugh Wilson, P.; Peter Wilson, M.A., B., P.; and Archibald Mitchell Woodside, B., P.

Women.—Christine Calder Abernethy, B., P.; Grace Hay Anderson, B., P.; Agnes Leggatt Duncan Bradford, B., P.; Susan Struthers, Bryce, B., Z., P.; Annie Burns Cameron, B., Z.; Elizabeth Pace Cameron, B., P.; Edith Chalmers, B., P.; Gladys Muriel Chapell, B., P.; Emily Loudon Clow, B., P.; Veronica Catherine Jessie Davies, B., P.; Simone Denil, B., P.; Edith Dennistoun Dobbie, B., Z., P., C.; Charlotte Ann Douglas, C.; Isabella Gibson Dunlop, Z.; Helen Hogg, C.; Elizabeth Smith Inglis, B., P.; Annie Campbell Kerr, B., P.; Ellen Thomson Mackenzie, B., P.; Annie Isabel Christian Maclardy, B., P.; Margaret Elizabeth MacLaren, B., P.; Caroline Jane Maclennan, B., P., C.; Agnes Hislop MacWhirter, B., P., C.; Marjorie Mitchell, B., P.; Margaret Mitchell Paterson, B., P., C.; Joanna Thomson Rae, B.; Helen Lennie Ralston, B., Z., P., C.; Kathleen Eleanor Hyde Rutherford, B., P.; Eliza Dorothea Sandison, B., P.; Marguerite Linck Sclanders, B., P.; Margaret Dorothy Lightbody Service, B., P.; Catriona Sinclair, B., C.; Jane Edgar Stewart, B.; Elaine Bessie Stuart Stocquart, B., P.; Helen Bruce Sutherland, B., P.; Jean Banks Thomson, B., P., C.; Mary Carswell Walker, B., P.; Lilian Jane Taylor White, B., P.; Helen Barr Wilson, B., P.; and Agnes Hart More Young, B., P.

The following have passed in the subjects indicated: A., anatomy; P., physiology; M., materia medica and therapeutics; Path., pathology:—

William Adams, M., Path.; Robert Aitken, M., Path.; John Ashforth, M., Path.; Alexander Basil Austin, M.; John William Waddell Baillie, M., Path.; Monindra Nath Bhattacharjie, Path.; Alexander Shanks Bisset, A., P.; Alexander Black, A., P.; Archibald M'Allister Blackwood, Path.; Donald Cameron Bowie, A.; Alexander George Brand, Path.; Donald Eadie Brown, A.; Michael John Cahalane, A., P.; William Moore Cameron, M.A., M., Path.; Thomas Watson Carstairs, A., M.; Malcolm Chalmers, M.A., P.; John Parker Chisholm, A., P.; John MacDougall Clark, Path.; John Salisbury Craig, M., Path.; Andrew Dick, M., Path.; William Donald, Path.; Archibald Browning Smith Drysdale, A., P.; William Edgar, P.; Thomas Forrest, Path.; Walter Watson Forsyth, M., Path.; Robert John Leslie Fraser, M., Path.; Thomas Ronald Fulton, Path.; Kenneth John Alexander Gillanders, P.; James Smith M'Lean Gray, A., P.; Eduardo Guillermo Sanchez Hall, M., Path.; William Ralston Duncan Hamilton, M., Path.; Archibald Harper, M.; Frederick William Hebblethwaite, M., Path.; James Charles Hendrie, M.; George Mundell Hetherington, Path.; John Hislop, Path.; Henry Fielding Hollis, M., Path; James Robert Riddell Holms, M., Path.; Tom John Honeyman, A.; Edward Porteous Irving, M.; James Neil Jamieson, M.A., M., Path.; Jacob Joels, Path.; Oswald Johnston, M., Path.; Robert Ebenezer Kerr, A., P.; William Hogarth Kerr, M.A., Path.; William Mackintosh Kerr, A., P.; William Fulton Kivlichan, M.A., Path.; George Lean, B.Sc., M.; James Liddell, Path.; Jacob Lipschitz, A., P.; Frederick Richard Lubovius, M.; Kenneth M'Alpine, M., Path.; Robert William MacDonald, Path.; Robert Tweedie M'Gibbon, A., P.; Arthur Daniel Clark M'Gowan, A.; Thomas M'Gowan, A., P.; John William Mackay, M.A., A., P.; Donald James MacKinnon, M., Path.; William Stanley Lones M'Leish, A., P.; William M'William, M., Path.; John Marshall, M., Path.; Jules Steinmetz Martin, M.A., M., Path.; William Duff Miller, M.; David Stephen Mitchell, M., Path.; George Anderson Mitchell, M.; James Moffat, M., Path.; Neil M'Eachran Montgomery, A., P.; Bryce Frood Niblock, A.; Isaac Ladipo Oluwole, P.; Norman Bligh Peacock, A., P.; John Browning Potter, A., P.; Andrew Riddell, A., P.; Samuel Murdoch Riddick, M.; David Bell Robertson, Path.; Humphrey Robertson, M., Path.; John Llewelyn Rowlands, M., Path.; William Scotland, A.; Henry Buchan Sergeant, M., Path; James Hamilton Shearer, M., Path.; Andrew Wauchope Smith, M., Path.; Clarence Lorraine Somerville, Path.; Alexander Bonham Stich, B.Sc., M., Path.; Douglas Taylor, M., Path.; John Lawrence Torley, Path.; Adolph Samuel Van Coller, A., P.; James Churchwill Vaughan, A., P.; Harold Douglas Wallace, A., P.; William Halliday Wallace, M., Path.; John Allan White, P.; John Pendleton White, M., Path.; Robert Wiggins, Path.; George Macfeat Wishart, A., P.; John Thomas Wylie, M., Path.; George Young, M., Path; and William Young, Path.

Women.—Annetta Gillies Turnbull Anderson, M.; Grace Chatterton, A., P.; Jean Mary Frew, M., Path.; Margaret Hutchison Glen, Path.; Janet Whyte Hepburn, A., P.; Grace Leisk Hunter, M., Path.; Mary Reid Knight, M.A., Path.; May Constance Boughton Leigh, M., Path.; Agnes Purcell M'Cavin, A., P.; Margaret Turner M'George, A., P.; Elizabeth Clark M'Haffie, M.A., M., Path.; Maud Elizabeth Drysdale Mackinnon, P.; Robina Stuart Mackinnon, M., Path.; Jessie Brown Maclachan, M., Path.; Lilias Maclay, M., Path.; Alice Julia Marshall, Path.; May Isabella Turner Reid, Path.; Jessie Napier Robertson, M., Path.; Margaret Nelson Robertson, A.; Agnes Petrina Routledge, A., P.; Dorothea Helen Suttie, A., P.; Lydia Ida Huber Torrance, A., P.; Marion Watson, Path.; and Mary MacLean Weir, M.A., M., Path.

THIRD PROFESSIONAL EXAMINATION.

Thomas Crawford, A.

MEDICAL FINAL EXAMINATION.

The following have satisfied the examiners in the Fourth (Final) Professional Examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.):—

Robert Aitken, George del Pino, Alexander Dick, Ronald Stevenson Dickie, Leonard Woodburn Gemmell, Norman William Gilchrist, Robert Kinnear Hay Gillespie, William Allan Higgins, M.A., Theodore Paton Hutchison, Florence Scott Kirk, Hugh Lawrence M'Cormick, Donald John MacDougall, Gerald James M'Gorty, Joseph Patrick M'Grechin, Archibald M'Innes, Margaret Jane Maclachlan, Effie Cowan M'Vie, Noah Morris, B.Sc., John Hughes Murray, Arthur William Panton, Kenneth M'Alpin Ross, Margaret Anne Hendry Stewart, Robert Taylor Todd, and George Turnbull Walker.

EXHIBITION OF FRACTURE APPARATUS AT THE ROYAL SOCIETY OF MEDICINE.

ADDRESSES BY SIR ALFRED KEOGH AND SIR ALMROTH WRIGHT.

THE Exhibition of Fracture Apparatus at the House of the Royal Society of Medicine was formally opened on Friday, Oct. 8th, by Sir Alfred Keogh, Director-General of the Army Medical Service, who was briefly introduced to a large meeting of medical men, civilian and military, by Dr. Frederick Taylor, the President of the society.

Sir Alfred Keogh pointed out the value that such an exhibition must be, both now and for future work, in that it was a step towards making scientific information common property. He alluded to the difficulties that existed in spreading available knowledge so that uniformity of practice could be adopted as the result of general opinion, remarking in this connexion on the extraordinary difference of views and experiences that characterised the treatment of tetanus. The purpose of exhibiting a collection of fracture apparatus was, he said, to help in continuity of treatment; and he urged the importance of as much intercommunication as possible between the surgeons in France and those on this side of the Channel. He gave high praise to the French methods of splinting, and said that much of the technique which had been devised to meet the exigencies of war would remain in civil practice.

Colonel Sir Almroth Wright then delivered an address, which will be published in later issues of THE LANCET, and afterwards gave a demonstration upon the Employment of Bandages for the Irrigation of Wound-surfaces with Therapeutic Solutions, and the Draining of Wounds, which will be found on p. 879 of this issue.

A large part of the exhibition was concerned with various methods of splinting for fractured limbs, and the amount of ingenuity which had been displayed in devising and inventing the many appliances shown was really surprising. Certain of them had been previously described in the medical press, but many were quite new to an interested crowd of visitors.

Major Robert Jones showed a large number of splints for various conditions; they were all constructed with much ingenuity, and were well adapted for the purposes for which they were intended.

The Wallace-Maybury extension leg-splint.—This affords a very powerful means of producing extension in the treatment of gunshot fractures of the femur; it may also be used for producing powerful extension of the leg during the process of plating fractures of the femur or tibia. The splint consists of a padded iron ring like the upper ring of a Thomas knee-splint, with two lateral steel rods with two transverse bars, the upper transverse bar being fitted with a wooden footplate for attachment to the limb and the lower being fitted with a long screw for producing extension. This splint is very effective. It was designed by Colonel Cuthbert Wallace and Captain B. C. Maybury.

A simple wooden crate was shown which allowed the transport of a Wallace splint containing a fractured femur with a minimum of disturbance. It consisted of a piece of wood the length of the splint with a raised foot-piece supporting the Wallace splint, which was firmly bound to it so that no movement could occur between them.

The Sinclair universal leg-suspension.—The comfort of a patient with a fracture of the lower limb, whether above or below the knee, is much enhanced by any contrivance which enables him to move his limb without any displacement of the fragments of bone. The Sinclair method of suspension has been designed with the intent of carrying out these desiderata. It consists of a frame supported by four posts, and on this frame are two rails on which runs a travelling cradle; from the cradle the splint is supported by weights attached to cords with counterbalancing weights. The cradle permits the patient to move up and down in bed for his own comfort, while the system of pulleys and weights allows him to raise and lower his pelvis for nursing purposes. The splint employed may vary according to the needs of the case. A Maybury-Wallace extension splint may be used; or a Hodgen splint, if the Thomas type of splint is not suitable on account of the position of the wound or from a sore produced by the pressure of the hip ring. This suspension apparatus was designed by Major M. Sinclair, with the assistance of Captain E. K. Martin, Captain St. J. D. Buxton, and Lieutenant W. Anderson. There is also a simplified model of the Sinclair suspension apparatus in which the longitudinal movement of the cradle is omitted.

A similar apparatus for use with the upper limb was also exhibited. In this form an upright is fixed to the head of the bed and carries a horizontal triangular frame which rotates on a pivot-joint at one corner, and from the frame the splint is suspended by cords passing over pulleys with weights to counterbalance the weight of the limb. This method of suspension cannot be used if the fracture is above the level of the posterior axillary fold. Several forms of splint can be used with this method of suspension; for fracture of the shaft of the humerus a straight Thomas arm-splint may be employed, or if the elbow is involved a right-angled gutter-splint may be used and the elbow may be fixed or the splint may be hinged so as to allow of movement. Examples of all these forms of splint were shown; each consisted essentially of an iron frame in which the limb was supported by perforated metal sheeting. Zinc and aluminium are the metals chiefly used as they are not liable to be affected by most of the fluids likely to be employed for irrigation. It has been found that for zinc sheeting the best size of the perforations is a quarter of an inch, leaving an eighth of an inch of metal between the perforations.

Stump-splint.—A splint for exerting traction on the soft parts of an amputation stump was shown by Colonel Sir G. H. Makins. It consists of a short Thomas knee-splint, extending a few inches beyond the stump, and the flaps are attached to it by strips of strapping. It was shown on a man with a stump, but he was not a victim of the present war; the utility of the splint was obvious.

Finger-splint.—A very useful splint for the extension of a finger was shown on a model by Captain St. J. D. Buxton. It consists of a bent aluminium band fixed to the wrist by plaster-of-Paris, passing beyond the finger and bent so that direct traction can be exerted by strips of narrow strapping attached to the finger. It is a neat little device.

The "Boulogne Box."—Colonel Sir G. H. Makins and Major H. G. Pinches show the "Boulogne Box," which is used for the transportation of fractured femurs. It is formed by two long outside splints made of stout wood, which are joined by transverse bars at the foot and also behind the thigh and behind the leg. The outside splints pass up on each side of the trunk; they are slotted to accommodate a movable foot-piece. In addition, an iron bar arches across the front of the chest, and if needed an iron interruption bracket can be fitted. It is, in fact, a form of Bryant's splint, and it has proved of great value.

The splash irrigator.—Major M. Sinclair exhibits a form of irrigator which should be of great value for continuous irrigation. The fluid is allowed to fall drop by drop on to a sheet of perforated metal, so that as the drops pass through they are split up into a fine rain which washes the required area; a metal trough below carries off the fluid. When it is desired to irrigate a wound on the under aspect of a limb the drops are allowed to fall on to sloping metal shelves below the limb, when they splash upwards on to the wound.

The copper spiral irrigator.—Captain E. K. Martin has used a convenient little irrigator, formed by bending into a spiral some copper tubing with a bore of one-sixteenth of an inch and closing the lower end. A number of holes are made in the tubing, and when the liquid for irrigation is led into the upper end of the tube it passes out of the holes in a fine stream.

Drainage-tubes.—Lieutenant W. Anderson showed a form of retractor and irrigator for use in large wounds on the anterior surface of the limbs; it has been found useful in the thigh with severe fracture of the femur. It is formed of perforated zinc sheeting and allows of very thorough drainage. Captain St. J. D. Buxton also showed a zinc drainage-tube formed of a strip of perforated zinc rolled up to form a tube. With these metal drainage-tubes the drainage is very thorough.

Aluminium skeleton splints.—Captain C. Max Page exhibited a number of splints made from aluminium rod which could be easily bent and cut and yet of sufficient stiffness to support a limb quite firmly. The rod has staples on its outer surface about four inches apart, by means of which the splint can be slung or pieces of it fastened together. A thigh splint, a straight arm splint, and a bent arm splint were shown. The thigh splint was composed of three pieces—the crutch-piece, the stirrup, and the prop. These splints are convenient for transport on account of their lightness. Their simplicity and their adaptability are remarkable.

Simple aluminium splints.—Dr. A. Ogier Ward exhibited instruments and aluminium bars and sheeting for making splints of all forms at a low cost and adapted to fit the individual patient. The chief novelty consists in the method by which the sheeting is adjusted to the bars.

Automatic extension splint.—Captain Thomas Warrington exhibited an ingenious splint in which the weight of the leg resting on a movable inclined plane produces extension. The splint is in two parts; the proximal portion fixes the upper part of the fractured leg, while the distal portion of the limb rests on a back splint which is supported by an inclined loop of iron, so fixed that the weight of the limb tends to increase the inclination and thus increases the interval between the proximal and distal portions of the splint, producing extension at the seat of fracture. To prevent lateral displacement, lateral supports are provided. The principle of this splint can be applied to the femur, knee, or tibia.

Extension splint for the compound fractures of the humerus.—Mr. Herbert J. Paterson showed a modification of the Thomas splint adapted so that it could be used with an arm in which it was desired to have the elbow bent at a right angle. It is a T-shaped splint, with a padded ring at one end of the horizontal portion of the T to fix at the shoulder; the forearm lies along the piece at right angles to the upper arm, and extension is made by means of strapping fastened to the part of the upper arm below the fracture and carried to the other end of the top of the T. Mr. Paterson also showed a splint for the treatment of a fractured radius with much injury to the bone. The object of the splint is to keep the hand well adducted so as to prevent shortening of the radius and union between the ulna and the broken end of the radius.

Rabbit-netting splints.—Colonel C. W. Cathcart had an exhibit to show the value of half-inch rabbit wire netting as an economical substitute for perforated metal in the making of splints. The splints shown were excellent and the economy must be great.

Leg-sling and cradle.—Captain F. Arthur Hepworth exhibited a tripod folding leg-sling and cradle for use in fractures of the lower limb; the use of a spring in the support diminishes jolting. It is a useful appliance.

Pads for splints.—Major A. Neve showed some moss pads and also some sawdust pads. The moss pads are extremely absorbent.

Sling for dressing wounds of the thigh and buttock.—Captain Rhodes Harrison exhibited a very simple arrangement for dressing compound fractures of the upper third of the femur and wounds of the buttock and sacrum without disturbance of the patient. It consists of a light wooden frame which surrounds the patient, and in which he is supported by slings of sheeting; the frame rests at the foot end on the raised end of the bedstead, and when it is necessary to dress the wounds the upper end of the frame is lifted so that it rests on the head of the bed and then the sling corresponding to the wound is loosened and the wound can be treated without the slightest disturbance to the patient. The apparatus is at once efficient, simple, and cheap.

A method of screwing septic compound fractures.—Mr. B. Sangster Simmonds showed the instruments for fixing compound fractures. The wound is covered over with a dressing and then the skin above and below the dressing is rendered sterile; then screws are inserted into the bone above and below the fracture and a plate is fastened to the screws outside the limb, thus keeping the fragments in position. The method appears to be likely to prove useful.

Treatment of fractures of the jaws.—Lieutenant A. C. Van Valadier demonstrated a number of methods which he had employed for gunshot wounds of the upper and lower jaws. One splint he called the prophylactic interdental splint; it consisted of a wire frame adapted to both the upper and the lower jaw, and wired to the teeth; it was called prophylactic because it made it possible to keep the mouth clean during use and thus prevented local sepsis. The elevator interdental splint was wired to the lower teeth and prevented any tendency to lateral movement to which the fracture might give rise. An external dental splint was shown which was moulded to the shape required in the hand so that pressure could be brought to bear where it was needed. Thus it was possible to adapt the splint to various displacements. For any splint needing external support Lieutenant Vadalier pointed out that the usual chin bandage was almost useless; the only efficient method was the use of adhesive strapping round the forehead, to which the bandage from the jaw was attached. An officer on whom he had operated was present. There had very extensive destruction of the lower jaw, more than two inches of bone being removed by the shot. The falling in of the two fragments was gradually overcome by the use of a little jackscrew which forced the fragments apart. New firm bone formed in the space between, and the present condition was very good indeed. One of the teeth was too loose to be retained, and Lieutenant Vadalier removed it and inserted it in another officer's jaw, where it had become firm and useful. This exhibit was very striking.

Lieutenant Howe exhibited a simple apparatus for the treatment of loss of grip and stiffness after injury to the arm and hand. It consists of a cylindrical piece of wood about 18 inches long, and 2 inches in diameter; this is fixed loosely into a support at each end so that it can rotate; to it is firmly fastened a cord, and to the other end of the cord are fastened one or more weights. The rod is seized by the injured hand and the patient rolls it round and round; this action rolls the cord round the rod and raises the weight. The amount of exertion can be modified by diminishing or increasing the weight. It is evidently a valuable piece of apparatus and yet very simple and cheap.

Captain C. H. Barber showed a splint for compound fractures of the leg; it is specially intended to allow the fractured portion of the limb to be dressed easily. Simple arrangements are made for extension.

The ingenuity and high constructive skill displayed in some of the apparatus provoked the admiration of crowds of discriminating visitors, and there is no doubt that the exhibition has been thoroughly useful to general surgery.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Oct. 7th, with Sir Francis H. Champneys in the chair. A letter was considered from the acting registrar of the General Medical Council with reference to a case of apparent "covering" of an unqualified woman acting as a midwife by a registered medical practitioner. A letter was also considered from the town clerk of Southend-on-Sea on the same subject. The Board directed that (*a*) the Privy Council be asked to request the Local Government Board to take an opportunity of calling the attention of local supervising authorities to the prevalence of the practice of midwifery by unqualified persons, and to the advisability, in the public interest, of instituting proceedings in courts of law against persons who commit breaches in the Midwives Act, particularly in respect of women practising as midwives against the provisions of Section 1 (2), and before the General Medical Council in respect of medical practitioners "covering" such women; (*b*) that the solicitor to the Central Midwives Board be authorised to present the case before the General Medical Council. A letter was considered from the Rev. S. E. Dodderidge asking the Board to authorise midwives to sign certificates of death. The Board decided that the Rev. S. E. Dodderidge be informed that the Board has no power to comply with his request.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Killed.

Captain E. C. Deane, R.A.M.C., who took his medical degrees in Ireland, and whose award of the Military Cross in recognition of gallantry and devotion to duty was recorded in THE LANCET of last week.

Lieutenant E. H. P. Brunton, R.A.M.C., attached to the 4th Battalion Grenadier Guards, was educated at Trinity College, Cambridge, and at St. Bartholomew's Hospital, and held the appointments of house surgeon at the Royal Portsmouth Hospital and of house physician at St. Bartholomew's Hospital.

Lieutenant E. J. Nangle, R.A.M.C., attached to the 1st Loyal North Lancashire Regiment, was assistant pathologist to St. Mary's Hospital, Paddington.

Wounded.

Captain E. Gordon, R.A.M.C.

Lieutenant W. S. Martin, R.A.M.C.

Lieutenant G. Miller, R.A.M.C., attached to the 11th Highland Light Infantry.

Captain C. R. Robertson, R.A.M.C.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men are to be added to our lists of those who have fallen during the war:—

Lieutenant G. E. L. Cressey, 2nd Yorkshire Regiment, son of Mr. G. H. Cressey, M.R.C.S., of Tunbridge Wells.

Second Lieutenant D. H. Donaldson, 7th London Regiment, elder son of Dr. T. C. Donaldson, of Harlington, Middlesex.

Captain C. G. Paramore, 8th Royal Berkshire Regiment, fourth son of the late Dr. Paramore, of Gordon-square, London.

R. Fitzmaurice, 1st Battalion London Scottish, fourth son of Dr. Fitzmaurice, of Littlehampton, Sussex.

Second Lieutenant J. J. Carswell, 10th Cameronians, younger son of Mr. J. Carswell, F.R.F.P.S., of Moray-place, Edinburgh.

Second Lieutenant M. W. Duirs, 7th King's Own Scottish Borderers, youngest son of the late Dr. D. P. Duirs, of Johannesburg, South Africa.

Major A. J. M. Tremearne, 8th Seaforth Highlanders, eldest son of the late Mr. J. Tremearne, M.R.C.S., of Melbourne, Australia.

Second Lieutenant G. L. Wainwright, 2nd Battalion 3rd Royal Sussex, elder son of Dr. L. Wainwright, of Folkestone.

Major M. Dobson, F.R.G.S., Royal Field Artillery, second son of Mr. Nelson C. Dobson, F.R.C.S., of Clifton, Bristol.

Lieutenant E. H. P. Brunton, R.A.M.C., attached to the 4th Battalion Grenadier Guards, younger son of Sir Lauder Brunton, Bart., M.D., F.R.S.

Second Lieutenant G. Wilkins, 2nd Northumberland Fusiliers, son of the late Dr. G. H. Wilkins.

Captain O. I. Wood, 1st Battalion Suffolk Regiment, elder son of the late Lieutenant-Colonel O. G. Wood, C.B., R.A.M.C.

Second Lieutenant K. S. Dunlop, 4th Battalion South Staffordshire Regiment, youngest son of Dr. A. Dunlop, of Jersey.

THE WAR AND THE NATIONAL HEALTH INSURANCE REGULATIONS.

The National Health Insurance Joint Committee, acting jointly with the Insurance Commissioners, have certified, on account of urgency, that the following regulation should come into operation forthwith as a provisional regulation under Section 15 of the National Insurance Act, 1911 (1 & 2 Geo. V., c. 55):—

1. An insured person whose name is included in the list of a practitioner on the panel who is on the 30th day of November, 1915, absent on military service shall not be entitled to select another practitioner or method of treatment at the end of the medical year ending on the 31st day of December, 1915, unless, in addition to giving notice to the Committee in the manner and within the period required by paragraph (1) of Article 30 of the principal Regulations, he satisfies the Medical Service Sub-Committee of the Committee that he has reasonable grounds for desiring to be removed from the list of the absent practitioner, and paragraphs (1) and (3) of Article 30 shall be modified accordingly.

2. The expression "practitioner who is absent on military service" means any practitioner on the panel who, by reason of his serving with the Naval or Military Forces of the Crown, is unable to practise, whether under his agreement with the Committee or otherwise, within the area in which he has undertaken treatment.

3. Nothing herein contained shall affect the right of an insured person under Articles 26 and 45 of the principal Regulations to be transferred to the list of another practitioner on the panel subject to the conditions contained in those Regulations.

WAR EMERGENCY COMMITTEE.

The following communication, forwarded by the Director-General Army Medical Service, was read to the War Emergency Committee at a meeting on Oct. 6th:—

We have observed with some regret that in recent *Gazettes* there have appeared the names of many medical men who have resigned their temporary commissions in the Royal Army Medical Corps. It is, of course, certain that a considerable proportion of these are recalled to Great Britain by personal and public claims on their services which they could not neglect, but at the same time we think that the claims of the army and of the nation are perhaps scarcely sufficiently considered by those at home, at whose call some at least of the officers have resigned their commissions. It may well be that, after the past few months of comparative quiet, medical men at home may hear from those who have been serving in France that some of them have found the work monotonous. And, while this no doubt is perfectly true, we would ask those who contemplate applying for commissions to consider the matter in another light.

Every one recognises more or less that in order to ensure a successful issue to the war our army and navy must show the greatest patience and tenacity of purpose, and that without these mere bravery in battle is of but little value.

The same is true of the work of the medical profession. A similar tenacity of purpose and an equal patience are required in addition to the skill and energy which every battle calls forth. The excitement of great and moving events is necessarily transient, and men must be prepared to do their duty steadfastly during long periods of dullness. Yet it is during these dull periods that the services of the army surgeon are really of the greatest value, though they may be dull and uneventful to himself, and it is during these intervals that the regimental medical officer gets into that close touch with officers and men alike which gains their confidence and gives him an influence without which mere professional knowledge is not of much avail.

The medical officers who are attached to regiments, batteries, motor convoys, &c., are each responsible for the health and well-being of many hundreds of men, and it is not too much to say that the strength of our armies has been largely maintained during the past year by the work of these officers.

It is no doubt monotonous to be constantly watchful of the cleanliness of billets, to supervise food, to prevent parasitic infections, to treat sore feet, diarrhœa, or muscular rheumatism, and to do the thousand and one things which help to keep the soldier an efficient fighting man. But the medical officer who does these things is doing at least as much for his country as the man who performs operations or treats enteric fever.

The staff of the field ambulances have also to deal with many minor ailments of but little interest, but every

division is dependent on them for the rapid return to the regiments of those whose illnesses are too slight to justify a return to England. Rest stations and convalescent depôts in charge of the field ambulances are also dull, but the good they do in maintaining the health of the troops is almost incalculable, and we would urge on all medical men who wish to serve their country that the performance of all such duties is essential for success in the present war.

The work of the casualty clearing stations and of the general hospitals at the base is characterised by periods of comparative idleness and of excessive work, but it must be evident to all that, unless the staff was too large for periods when there is but little fighting, it would be far too small for dealing with the crowds of wounded which follow in the wake of every great battle. And, hard though it may be to remain comparatively idle during months of comparative peace, it must be remembered that the lot of the medical officer is in this respect identical with the lot of the cavalry soldier or the artilleryman.

The country needs the service of men who are prepared not merely to brave the dangers of a battlefield, but also to endure with patience and cheerfulness the dull routine of daily work and waiting. The coming winter may well prove a severe trial to those whose duty it is to fight, and there can be no doubt that if our army is to be kept healthy and ready for action, the medical profession must supply it with men who will show the same determination and patience in their own field of work as have distinguished the British soldier throughout this campaign.

G. H. MAKINS, F. F. BURGHARD,
ANTHONY A. BOWLBY, W. P. HERRINGHAM,
JOHN ROSE BRADFORD, CUTHBERT WALLACE.

The War Emergency Committee has on previous occasions noted with regret the fact that resignations were occurring of the temporary commissions in the Royal Army Medical Corps. It is of course impossible that some resignations should not occur, but it is earnestly hoped that they will be as few as possible considering the further and urgent demands on the medical profession which has recently been made by the Director-General of the Army Medical Service.

THE SIGNIFICANCE OF ABNORMAL SIGNS IN THE RECRUIT'S HEART.

At the request of the War Office Sir James Mackenzie has drawn up a Memorandum to serve as a guide to medical examiners of recruits, to which, at Sir Alfred Keogh's desire, we draw attention here in case the Memorandum itself may not have come before all the examiners. The Memorandum, which is dated September, 1915, reads as follows:—

"It should be understood that the healthy heart in the young can exhibit murmurs, and variations in rate and rhythm, which are perfectly physiological in origin and indicative neither of disease nor of impairment.

The functional efficiency of the heart.—Before examining the heart, find out the *functional efficiency* by ascertaining how it responds to effort. This is shown by finding out the amount of exertion the candidate has been accustomed to take in the past in his work or play, and if he can undergo *severe bodily exertion* without distress.

Murmurs.—The physiological murmurs are always systolic in time, and the situation of the greatest intensity may be at the apex, midsternum, or base of the heart. If the candidate's response to effort be normal, and the heart normal in size, the murmur is negligible, for it is manifest that, if the cause which produces the murmur hampers or embarrasses the heart in its work, the size of the embarrassed chamber will increase and its functional efficiency be impaired.

Irregularities of the heart.—There are only two forms of irregularity that need be considered. Irregularities indicating serious mischief will be associated with such diminution of the functional efficiency that the candidate would not seek to recruit—such as the irregularity of auricular fibrillation or of heart-block.

Youthful type of irregularity.—The most common irregularity is that which occurs in the healthy heart of the young. It is characterised by a lengthening and shortening of the pauses between the beats; it will often be found to vary with the respiration, the beat increasing in rate during inspiration and decreasing during expiration. When it does not have the characteristic respiratory character it can be made to take on the character by getting the candidate to breathe slowly and deeply for a few minutes. It is frequent in perfectly healthy hearts, and is, therefore, of no importance, and candidates should not be rejected on account of its presence.

Extra systoles.—In rare cases the pulse may be found intermitting more or less frequently. If the heart be auscultated two short sharp sounds rapidly following one on the other may be heard during the pause. If this is the only sign present—i.e., if the functional efficiency of the heart be good and the size normal—then these extra systoles are of no significance and the candidate should not be rejected.

The effects of excitement.—Many candidates whose hearts are perfectly healthy suffer from palpitation or excited action of the heart during examination. The beat becomes forcible and rapid and a systolic murmur may be present. If such a candidate be told to lie down and breathe slowly and deeply for a few minutes the heart's action becomes less violent and the rate slows during expiration. With a history of good functional efficiency the candidate may be considered suitable for enlistment."

THE SPEED OF AMBULANCE TRAINS.

The greatest thought and care have been devoted to the provision of ambulance trains for the transportation of the sick and wounded returning from the front, so that the trains are marvels of comfort, and much praise is due to those who have devised and supplied them. There is, however, another point connected with the transport of the wounded by rail which has not, so far as we are aware, received all the attention which it deserves, and this is the question as to what is the optimum speed, as a physiologist would say, at which the ambulance trains should be run.

There are two considerations which have to be taken into account: in the first place the more slowly the train moves the less shaking there is and the less the patients are disturbed; but, on the other hand, if the train travels slowly the patients will be longer on the journey, and in that way they may be more tired when they arrive at their destination. There is something to be said on both sides, but there appears to be an opinion among many of the wounded themselves that the more slowly moving trains on the whole cause less discomfort. In France we are informed that the average speed of the ambulance train is something about 20 miles an hour, while in this country a laudable endeavour seems to be made to carry the wounded to their hospital as quickly as possible, and therefore the speed of the trains is about twice as fast, so time is saved, but at the expense of an increase of discomfort. We do not venture to express any decided opinion as we have not sufficient testimony

before us, but we think that at least we have shown reason why the matter should be made the subject of an inquiry.

IN AID OF THE BRITISH WOUNDED.—On Oct. 21st (Trafalgar Day) the British Red Cross Society and the Order of St. John of Jerusalem will make an urgent appeal throughout the country on behalf of the British wounded. Miss May Beeman, the honorary organiser, 83, Pall Mall, S.W., invites offers of assistance from anyone able to help a disabled soldier, such offers to be sent to her on a post-card. In London and the provinces flags and emblems will be sold in the streets and in public buildings and commercial houses. A specially designed device will represent the colonies, and colonials are invited to take part in the selling of such emblems. The public generally are requested to help by displaying a Red Cross appeal in their windows. Many distinguished ladies are interesting themselves in the work of organisation, including the Duchess of Abercorn, the Marchioness of Ormonde, the Marchioness of Sligo, the Duchess of Norfolk, the Duchess of Devonshire, the Marchioness of Bute, the Viscountess Falmouth, the Countess of Ancaster, Lady Mary Turnor, Lady Mary Welby, the Countess of Lonsdale, and the Countess of Plymouth. Many of the lessees and managers of London and provincial theatres and music halls have generously offered to give 10 per cent. of their gross receipts at their performances on Oct. 21st to the Fund.

FOOD IN WAR TIME.[1]—Professor D. Noel Paton delivered his second lecture on this subject at the Hampstead Central Library on Monday, Oct. 11th, Mr. Ernest Aves (Chairman, Executive Committee, Hampstead Council of Social Welfare) presiding. The lecturer said it might be thought that the simplest way to investigate the problem of the proper proportion of protein in the diet would be to have a man fasting for several days, and ascertain how much protein he was wasting, deducing from this the amount of protein necessary to repair the waste. This method, however, had never yielded satisfactory results, because the amount of protein so wasted depended so greatly upon the conditions under which the man was fasting and the supply of fat which was already stored in the body. Another method, followed notably by Chittenden, was to endeavour to ascertain the smallest amount of protein upon which a man could live and maintain health. Chittenden cut down his own intake of protein drastically, and claimed a benefit in his health. But the question to be faced was not that of the lowest quantity of protein on which life could be maintained, but the best proportion of it in the ordinary working diet. Gelatin was a protein equal for energy production to other proteins, but it lacked certain of the amino-acids needed for body repair. From this latter point of view the meat proteins were the most valuable, after which in order of merit came milk, rice, potatoes, and far down in the list bread. The comparative inefficiency of bread was due to the fact that it consisted of two proteins, one of which lacked certain of the essential amino-acids. Young rats fed on lard instead of butter fat did not flourish, but on adding even a small amount of butter fat they began to grow. People using a diet of polished rice were subject to beri-beri owing to the removal of the outer crust in the process of polishing, but if even the washings of this crust were given the disease did not occur. In northern climates especially, the taking of the amino-acids in protein stimulated the rate of chemical changes in the body. Hence the great value of proteins in athletic training, also in cold weather. The Eskimo consumed eight times as much protein as did the European, and though the ingestion of proteins was supposed to lead to various physical and moral ills, Eskimos were the most peaceable people in the world. The carbohydrates were the chief source of supply of the 3500 calories of energy required by the man in muscular work, but for most people anything over 500 grammes of carbohydrates daily led to intestinal indigestion. Fats were more troublesome to digest, and dearer. The maximum which could be taken without causing disturbance was 100 grammes, yielding 930 calories of energy. The additional 500 calories the proteins afforded. For a sedentary life, requiring only 2500 calories, the protein requirement was less. For energy production, as contrasted with repair, vegetable proteins were as useful as those derived from animal tissue. It was cheap food which had made the industrialism of Great Britain prosper as it had done, and he regarded the present increase in the price of food as a real menace to the working capacity of the country. Some time ago he calculated that the labouring classes in Edinburgh were paying about 2*d*. per 1000 calories of energy in the food. The popular notion that proteid foods were not fattening was supported by scientific observation; there was very little evidence that the proteins could be stored as fats.

Professor Paton next brought forward information which had been compiled with regard to the food consumed by different families having small incomes in different cities. In his last investigation made in Glasgow, in not a single family among those examined, receiving less than 20*s*. a week, was the food consumed sufficient to yield even 3000 calories of energy, 500 less than had been laid down as the normal labouring requirement. In those whose wages were between 20*s*. and 40*s*., 28·5 per cent. had an energy intake of less than 3000 calories. The chief food among poorer families was bread, potatoes, beef, and green vegetables. The investigation in three cities yielded the following:—

	Edinburgh. Grms.	York. Grms.	Dublin. Grms.
Proteins	107	89	98
Fats	88	80	90
Carbohydrates	479	386	468
Calories	3228	2685	3107

The percentage of available income expended on food varied greatly with the wage, from 55 per cent. in the case of those receiving 40*s*. or 43*s*. weekly, to 80 per cent. in the lower series. The investigators found in Scotland a very marked difference in size and growth of the children at different ages according to the diet provided. A serious aspect was due to the ignorance of the masses as to what constituted good food, and what food was less good, and to bad marketing. Moreover, food habits had a very strong hold and were very difficult to break through. Between good and bad food there was no hard-and-fast line; the difference was relative. The character of a good food might be summarised as follows: 1. It should yield a good supply of energy at a small cost. 2. It should yield a fair supply of protein at small cost, taking care to include proteins specially serviceable to repair waste. 3. The food must be capable of being digested and assimilated. 4. It should not be very bulky. Vegetable foods contained a considerable amount of the inert cellulose. 5. The food must be palatable. 6. It must not contain toxic substances.

THE AMERICAN HOSPITAL, PAIGNTON: DEPARTURE OF DR. HOWARD BEAL.—A farewell luncheon was given on Wednesday last, at the Imperial Restaurant, London, W., by Sir William Osler to Dr. Howard Beal, on the occasion, after a year's service as commandant of the American Hospital at Paignton, of his return to the United States. The American Ambassador, the President of the Royal College of Physicians of London, and the Director-General of the Army Medical Service were among the guests assembled to say good-bye to Dr. Beal. The luncheon was quite informal, but in a few words Sir William Osler bore testimony to the admirable work which had been done by Dr. Beal and the staff of the hospital under his charge, and his statements were supported by Sir Alfred Keogh, who said that the initial difficulties of a strange country having been surmounted, the organisation of the hospital had gone with absolute smoothness, while its labours had been of the greatest use to the Army Medical Service. Dr. Beal, in reply to the toast of his health, described the origin of the hospital. He said that a certain number of units, each consisting of three surgeons and ten qualified nurses, had started on the outbreak of war from New York to place their services at the disposal of the Allies. Before sailing the vessel was found to have a German staff which had to be got rid of, and with infinite difficulty they made Falmouth owing to the discharged staff having stuffed the pumps with blankets and other obstructive material, while removing nuts and bolts from vital portions of the machinery. Dr. Beal described the formation on Mr. Paris Singer's estate at Paignton of a hospital for 250 beds and 20 isolation beds, and said that up to date they had received at the hospital 1900 patients and had had only five deaths. He added that he had come with the American Hospital because he felt

[1] A report of the previous lecture appeared in THE LANCET, Oct. 9th, p. 838.

the call of blood. In the seventeenth century his family were living about 90 miles from London, and he believed that such connexions with this country were working in the minds of many Americans as they had worked in his own, so that if at any time the British War Office by widening their scope should ask for assistance in the medical department he was certain that there would be a rapid response.

EMERGENCY VOLUNTARY AID COMMITTEE: BATHS FOR THE SOLDIERS.—Some months ago the Emergency Voluntary Aid Committee of the Empress Ladies Club initiated a scheme for sending strong portable galvanised baths with the necessary stoves and boilers to various points near the front where facilities for hot baths had not previously existed. These baths were sent out in units of five full-sized baths with one hot water boiler and a supply of soap, scrubbers, bath towels, &c., to particular battalions selected by subscribers of £10 (the cost of a unit and equipment). That the tubs were a great practical success is proved by many letters of thanks received from the commanding officers to whom units were sent, and we are informed by the Committee of the club that applications from officers on behalf of their regiments have been received in great quantity. The military authorities at the Western Front have heartily approved of the scheme, and have now agreed to distribute, wherever necessary, a further consignment of 2000 more baths and 400 boilers with accessories as speedily as they can be sent out. The Committee has been also asked to provide 300 baths and 60 boilers for the use of field hospitals and casualty clearing stations at the front. £5000 at least will be required to meet such a demand, £100 being estimated as the sum that will supply sufficient baths to provide cleanliness, comfort, and increased physical fitness for about 30,000 troops each month. The same estimate says that £10 will equip a unit, while £1 will provide a bath. Our readers are asked to bring the movement before patients and friends willing to organise local subscriptions. All communications should be made to the honorary secretary of the Committee at the Empress Club, 35, Dover-street, Piccadilly, London, W.

MEDICAL HELP FOR SERBIA.—The Wounded Allies Relief Committee has appointed as surgeon-radiographer to the hospital at Kragujevatz, Serbia, Dr. J. Blair Donaldson, one of the radiographers at the Royal Infirmary, Edinburgh.—Reinforcements in the shape of nurses and orderlies for the hospital units of the Scottish Women's Hospitals left for Serbia early in the week, in spite of the new position caused by the action of Bulgaria.

BRIGHTON AND THE WOUNDED.—Besides the great Indian General Hospitals, the 2nd Eastern General Hospital, and a number of schools and private institutions in all parts of Brighton and Hove, the War Office is now taking over another of the council schools for the purposes of a military hospital. This school, in the Queen's Park district, is one of the most modern, and the equipment includes a spacious swimming-bath.

HOSPITAL FOR INVALIDED SOLDIERS AT HAM GREEN.—Subject to the approval of the Local Government Board, the Bristol city council has decided to offer the use of the tuberculosis sanatorium, erected by the corporation at Ham Green, and now nearing completion, to the War Office for the use of invalided soldiers.

FIRE AT A PLYMOUTH MILITARY HOSPITAL.—On Oct. 5th a fire occurred at the Salisbury-road Military Hospital and a considerable amount of damage was done. This hospital, a large school building, was taken over by the military authorities at the commencement of the war. There were 135 patients in the hospital at the time of the fire, and all of them were safely removed.

NAVAL HOSPITAL AT TRURO (CORNWALL).—The Truro workhouse has been taken over by the Admiralty, and is to be used as a hospital for the wounded of the naval battalion engaged in the Dardanelles. The hospital will be under the management of the Cornwall branch of the Red Cross Society, and it is expected that it will very shortly be occupied.

THE ENDSLEIGH PALACE HOSPITAL FOR OFFICERS.—The dismissal of the senior nursing officer by the committee has led to a protest from certain members of the nursing staff, who consider that action has been taken against their chief in an arbitrary fashion.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

PARLIAMENT is now resuming its sittings interrupted for a week by the necessity of adjusting the text of the Finance Bill. Attention in both Houses is strictly confined to matters arising out of the war either of an administrative or financial nature.

Medical Men and Motor Spirit Duty.

Clause 10 of the Finance (No. 3) Bill, which imposes an additional duty of 3*d*. per gallon on motor spirit, provides for a rebate to medical men. The third subsection lays down that "the like allowances and repayments shall be allowed and made in respect of the additional duties under this section as are allowed and made in respect of the duties payable under Section 84 of the Finance (1909-10) Act, 1910." That statute provides that an allowance or repayment of half the amount of the duty payable in respect of motor spirit should be made to medical men, when that spirit is used by them in a car for the purposes of their profession.

Imported Motor Ambulances.

Imported motor ambulances are by the terms of the Finance Bill exempted from the duties which are now being placed on imported motor-cars. This exemption applies also to the chassis, component parts, and accessories.

Experiments on Living Animals.

The return showing the number of experiments on living animals during the year 1914 under licences granted under the Act 39 and 40 Vict., c. 77, has been issued. Mr. G. D. THANE, the chief inspector, states that by reason of the great stress of work thrown upon the Home Office owing to the war it has not been possible to prepare the report on experiments performed in England and Scotland during the year 1914 in the usual detailed form. From the report it appears that nine new places were registered for the performance of experiments, and one place was removed from the register during the year. The total number of licensees was 678. Reports have been furnished by (or, in a few cases, on behalf of) nearly all these licensees, but in eight instances it has not been possible to obtain the necessary report owing to the absence of the licensees on war service. The reports show that 188 licensees performed no experiments. The numbers given above include 18 licensees whose licences expired on Feb. 28th, 1914, and of whom 16 returned no experiments in 1914.

The total number of experiments included in Table II. (A) (experiments other than those of the nature of simple inoculations, hypodermic injections, or similar proceedings) is 4889. Of these there were performed: Under licence alone, 2772; under Certificate C, 263; under Certificate B, 1550; and under Certificate B + EE, 304.

It is further stated that Table II. (B) is devoted entirely to inoculations, hypodermic injections, and some few other proceedings performed without anæsthetics. It includes 82,364 experiments, whereof there were performed: Under Certificate A, 81,891; under Certificate A + E, 383; under Certificate A + F, 90. The total number of experiments is 87,253, being 905 less than in 1913; the number of experiments included in Table II. (A) shows a decrease of 1460 and that in Table II. (B.) an increase of 555. The returns show that during the year 1914, 22,371 experiments were performed by 19 licensees in the course of cancer investigations; of these, 625 are in Table II. (A) and 21,746 in Table II. (B). The latter are almost entirely inoculations into mice. Ninety-four licensees report over 24,000 experiments which were performed for Government departments, county councils, municipal corporations, or other public health authorities. Twenty-one licensees report over 15,000 experiments for the preparation and testing of antitoxic sera and vaccines and for the testing and standardising of drugs.

From the visits they have paid the reporters have formed the conclusion that the licensees have been generally attentive to the requirements of the Act and the conditions attached to these licences by the Secretary of State. The irregularities which have come under notice during the year have been few and not of a serious character.

Dr. JOSEPH O'CARROLL makes the report in regard to Ireland. He states that in that country 340 experiments were performed by 20 licensees, 92 being under licence alone and 248 under certificate. 210 were simple inoculations under Certificate A, of which 86 were made for the investigation of diseases of the lower animals. In 132 cases the object of the research was physiological; in 198 the object was pathological, with either a diagnostic or therapeutic aim; and in eight cases the aim was medico-legal.

It occurs to me," writes Dr. O'CARROLL in conclusion, "that where so many problems especially pertaining to the public health are being examined by earnest and well-qualified persons they might be invited to record in their annual

reports a brief note of any results definitely acquired by them. The fact that tubercle bacilli have been found in this or that proportion of samples of milk submitted to examination ought to have publicity in the interest of public health; as things are at present, modesty or want of leisure may delay or prevent the publication of results which may be of great importance. If such results were recorded in licensees' returns this annual report would acquire a scientific value; while subsequent fuller publication of methods and results would rather be promoted than prejudiced. I have every reason to believe that the holders of licences have obeyed the spirit as well as the letter of the Act, and that experiments have not been unnecessarily multiplied."

HOUSE OF COMMONS.

TUESDAY, OCT. 12TH.

Medical Inspection under the Factory Acts.

Mr. KING asked the Under-Secretary for the Home Department whether he was aware that in connexion with the provisions under which school children gained certificates under the Factory Acts inspection by a Home Office medical man was required, while under the medical inspection of school children inspection by a medical man under an education authority was required; and whether, in order to prevent overlapping of duties and consequent waste of public money and unnecessary strain on medical men's work he would inaugurate emergency legislation to simplify the present complicated and expensive requirements.—Mr. BRACE replied: The factory examination serves a different purpose from that of the school examination and to provide for it through a system of school medical inspection would involve a considerable development in the work of the school medical officers which could not be undertaken at present. Even if it were done, I doubt whether any considerable saving would result, and in any case the saving would not accrue to the public funds as the charge for the factory examination is at present borne by the employer and not by the State.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
A Surgeon in Khaki. By A. A. Martin, M.D., Ch.B., F.R.C.S. Edin. Price 10s. 6d. net.

BAILLIÈRE, TINDALL, AND COX, London.
Anæsthesia and Narcosis of Animals and Birds. By Frederick T. G. Hobday, F.R.C.V.S., F.R.S.E. Price 5s. net.

BELL AND SONS, G., London.
Quantitative Laws in Biological Chemistry. By Svante Arrhenius, Ph.D., M.D., LL.D., F.R.S., Nobel Laureate; Director of the Nobel Institute of Physical Chemistry. Price 6s. net.
Married Women's Work: Being the Report of an Inquiry undertaken by the Women's Industrial Council. Edited by Clementina Black. Price 2s. 6d. net.

CHURCHILL, J. AND A., London.
Vicious Circles in Sociology and their Treatment. By Jamieson B. Hurry, M.A., M.D. Cantab. Price 2s. net.

DENT, J. M., AND SONS, LIMITED, London and Toronto.
The Child: His Nature and Nurture. By W. B. Drummond, M.B., C.M., M.R.C.P.E. Enlarged and revised edition. Price 2s. 6d. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Practitioners' Encyclopædia of Medical Treatment. Part I.: Methods in Treatment. Part II.: Agents in Treatment. Edited by W. Langdon Brown, M.D., F.R.C.P., and J. Keogh Murphy, M.C., F.R.C.S. With introduction by Sir Thomas Clifford Allbutt, K.C.B., M.D., F.R.S. Price 35s. net.
Wounds of the Thorax in War. By J. Keogh Murphy, M.C. Cantab., F.R.C.S. Staff-Surgeon, R.N.V.R. Price 2s. 6d. net.
Nerve Injuries and Shock. By Wilfred Harris, M.D. Cantab., F.R.C.P. Lond., Captain, R.A.M.C. Price 3s. 6d. net.
Cerebro-spinal Fever. By Thomas J. Horder, M.D., Major (temp.), R.A.M.C. Price 3s. 6d net.
Gunshot Injuries of Bones. By Ernest W. Hey Groves, M.D., M.S. Lond., F.R.C.S. Eng., Captain, R.A.M.C. (T.). Price 3s. 6d. net.

JARROLD AND SONS, London.
Death and the Hereafter: A Study in Biblical Eschatology. By Dr. C. Williams. Price 1s. net.

LONGMANS, GREEN, AND CO., London.
Principles of General Physiology. By W. M. Bayliss, M.A., D.Sc., F.R.S. Price 21s. net.

MURBY, THOMAS, AND CO., London.
Our Teeth and Our Health. By H. Uren Olver, L.D.S.R.C.S. Price 1s. net.

SAUNDERS (W. B.) COMPANY, London and Philadelphia.
A Text-Book of Pathology. By Alfred Stengel, M.D., Professor of Medicine, University of Pennsylvania; and Herbert Fox, M.D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Sixth edition, reset. Price 25s. net.
Exercise in Education and Medicine. By R Tait McKenzie, B.A., M.D., Professor of Physical Education, University of Pennsylvania. Second edition, thoroughly revised. Price 18s. net.
A Text-Book of Physiology. By Wm. H. Howell, M.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Sixth edition thoroughly revised. Price 18s. net.
The Principles and Practice of Obstetrics. By Joseph B. DeLee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School. Second edition, thoroughly revised. Price 35s. net

SCIENTIFIC PRESS, LIMITED, London.
Women in the Public Health Service. By Edith L. Maynard. Price 1s. 6d. net.
Practical Hints to Health Visitors. By Greta Allen. New edition. Price 1s. net.

UNIVERSITY PRESS, Cambridge.
Botany for Senior Students. By D. Thoday, M.A. Cantab. Price 5s. 6d. net.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

NUNAN, T. J., L.R.C.P. & S.Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Mountrath District of Queen's County.

OVERTON, REGINALD FREDERICK NOYES, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Acting Medical Officer for the No. 1 District and Workhouse by the Torrington (Devon) Board of Guardians.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BRIGHTON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer. Salary £250 per annum, with board and lodging.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry. Also Dental House Surgeon for six months. Salary at rate of £120 per annum, with apartments, board, and laundry.

CARDIFF, WELSH METROPOLITAN WAR HOSPITAL, Whitchurch.—Resident Physician. Also Junior Surgeon to assist Surgeons in charge.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £200 per annum, with board, apartments, and laundry.

DORCHESTER COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £300 per annum and all found.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £150 per annum, with board, apartments, and washing.

HARROGATE INFIRMARY.—Resident House Surgeon.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 40, Grove End-road, N.W.—Medical Officer. Salary £200 per annum, with board, residence, and laundry.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LEICESTER TUBERCULOSIS DISPENSARY.—Assistant Tuberculosis Officer. Salary £350 per annum.

LIVERPOOL STANLEY HOSPITAL.—House Surgeon for six months. Salary as arranged, with board, residence, and laundry.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Resident Medical Officer. Salary at rate of £120 per annum, with board, residence, &c.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum, with bonus of £5 per month for duration of war.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £250 per annum, with apartments, attendance, &c.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Female Resident Surgeon. Salary £120 per annum, with board, apartments, and laundry.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Four House Physicians, Four House Surgeons, Accident Room House Surgeon, House Surgeon to Aural and Ophthalmic Department, House Surgeon to Skin and Gynæcological Department, and House Surgeon to Out-patient Dressing Department.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female Temporary Assistant Surgeon for six months. Also Female Obstetric Assistant. Also Female Resident Medical Officer at House of Recovery, New Barnet.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon for six months. Salary at rate of £80 per annum each, with board, residence, and washing.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £150 per annum, with board, &c.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with residence, board, and laundry.

REETH UNION AND RURAL DISTRICT COUNCIL, Yorkshire.—Medical Officer (Muker District) and Medical Officer of Health (whole District). Salary £45 and £50 respectively.

ROCHDALE UNION INFIRMARY.—Temporary Assistant Resident Medical Officer.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon for eight months. Salary at rate of £100 per annum, with board and residence.

SAMARITAN FREE HOSPITAL, Marylebone-road, N.W.—Two Anæsthetists. Salary £15 per annum.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board and residence.

SOUTHAMPTON COUNTY BOROUGH.—Temporary Assistant Medical Officer of Health. Salary £300 per annum, with residence, board, and washing.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary £120 per annum, with rooms, board, and washing.

TRURO AUXILIARY NAVAL HOSPITAL.—Resident Assistant Medical Officer, unmarried. Salary £150 per annum, with quarters, board, and laundry.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

WARRINGTON, LORD DERBY WAR HOSPITAL.—Resident Surgeons. Pay £1 per diem and all found.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Ophthalmic Surgeon.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Resident Medical Officer. Salary £160 per annum. Also House Physicians and House Surgeons. Salary £120 and £100 per annum respectively, with board, residence, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female House Surgeon. Salary £150 per annum, with board, apartments, and washing. Also Resident Surgical Dresser. Salary £2 2s. per week, with board, apartments, and laundry.

WILLESDEN URBAN DISTRICT COUNCIL HEALTH DEPARTMENT.—Temporary Assistant Medical Officer of Health and Assistant School Medical Officer. Salary £3 8s. per week.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Two Senior Students to act as Assistant House Surgeons. Salary as arranged, with board, rooms, and laundry.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Second Assistant Medical Officer. Salary £275 per annum and all found.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

THE Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Birminbam County Court in Circuit No. 21. Applications should be addressed to the Private Secretary, Home Office, not later than Nov. 3rd.

Births, Marriages, and Deaths.

BIRTHS.

BIRKS.—On Oct. 8th, at Wilsbury, Brading, Isle of Wight, to Lieutenant A. H. Birks, R.A.M.C., and Mrs. Birks, a son.

HYLTON.—On Oct. 8th, at The Circus, Bath, the wife of Doric Y. Hylton, L.D.S.R.C.S. Eng., of a daughter.

MARRIAGES.

AUSTIN—WILSON.—On Sept. 14th, at Christ Church, Trivandrum, Travancore, by Rev. W. Light, M.A., Chaplain of Trivandrum, Thomas Austin, I.C.S., son of Rev. Thomas Austin, M.A., R.N., retired the Chaplaincy, Bodmin, Cornwall, to Cristina Wilson, M.B., Ch.B., Medical Officer in Charge, Government Hospital for Women and Children, Trivandrum, neice and adopted daughter of George Wilson, Esq., Broombill-road, Aberdeen.

KENNEDY—HORE.—On Oct. 6th, at Waltham Abbey, Lieutenant Charles Matheson Kennedy, F.R.C.S. Eng., R.A.M.C., to Mabel Maud, eldest daughter of Mr. and Mrs. Henry Hore, of Balcony House, Stewardstone, Essex.

LAPAGE—MACDONALD.—On Sept. 1st, at St. Chrysostom's, Victoria Park, Manchester, by the Rev. M. J. Ransome, assisted by the Rev. H. A. Ransome (uncles of the bride) and the Rev. C. R. P. Muir (Rector), Charles Paget, eldest son of Dr. and Mrs. Lapage, of Nantwich, to Hilda, only daughter of the late Dr. Macdonald, of Kirkoswald, Cumberland, and of Mrs. Macdonald, Eversley, Victoria Park, Manchester.

MORCOM—BIRCHENOUGH.—On Oct. 12th, at St. Mark's, North Audley-street, Dr. Alfred Farr Morcom to Sylvia Millicent, elder daughter of Henry Birchenough, C.M.G., and Mrs. Birchenough.

NEWBERRY—WYLIE.—On Oct. 9th, at Marshall-street Church, Edinburgh, Richard Fenton Theodore Newberry, Temporary Lieutenant, R.A.M.C., to Annie Flora, eldest daughter of the Rev. Alexander and Mrs. Wylie, of Edinburgh.

STAIN—NUNNERLEY.—On Oct. 5th, at Audlem Church, Dr. William Corbet Stain to Annie, youngest daughter of Mr. and Mrs. J. Nunnerley, of Hankelow Manor, Audlem.

DEATHS.

BRUNTON.—Killed in action in France on Oct. 8th, Lieutenant Edward H. P. Brunton, R.A.M.C., attached to the 4th Battalion Grenadier Guards, younger son of Sir Lauder Brunton, Bart., M.D., F.R.S., aged 25 years.

CANT.—On Oct. 7th, at White Cross, Lincoln, William John Cant, M.B., Ch.B., M.R.C.S., L.R.C.P., L.S.A., aged 59 years. R.I.P. (The funeral was at S. Peter's-in-Eastgate Church on Saturday, Oct. 9th, at 10.30 A.M.)

DEANE.—On Oct. 8th, suddenly, at Bronshill House, Torquay, Edwin Deane, L.R.C.P. Edin., aged 61 years.

FORD.—On Oct. 7th, suddenly, at Wolston, near Coventry, Ernest George Ford, M.B., Ch.B. Edin., Captain, late R.A.M.C.

NICHOLLS.—On Oct. 7th, suddenly, Gordon Fitzherbert Nicholls, M.D. Durh., of Newcomin Lodge, Dartmouth, late of Birmingham, aged 55 years.

STAMPER.—On Oct. 5th, at Hackney Infirmary, Geoffrey Cook Stamper, M.R.C.S., L.S.A., in his 58th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

VITAL STATISTICS OF MALTA.

Lord Methuen, who is acting as Governor of Malta, has forwarded to the Colonial Office a report prepared by Mr. A. H. Byatt, C.M.G., Lieutenant-Governor and Chief Secretary, on the affairs of the colony for the year 1914–15. It states, *inter alia*, that the civil population on April 1st was estimated at 218,542, as against 216,879 on April 1st, 1914. The number of births in 1914–15 was 6953, as compared with 7163 in the previous year—31·8 per 1000, as against 33·02. The average birth-rate for the past 12 years was 36·36 per 1000. The deaths reported in 1914–15 numbered 4569, as compared with 5150 in the previous 12 months—20·92 per 1000, as against 23·61, while the average for the past decade was 19·40. The number of marriages was 1121, as compared with 1235 in the previous year. The general state of health in the islands was very good. The number of cases of infectious disease in 1914–15 was 1560, with 292 deaths, as against 3298 and 426 respectively in 1913–14. These figures include cases and deaths in the fleet and garrison. The total number of cases of undulant fever reported from the fleet and garrison was only three. The number of goats and sheep found infected and destroyed during the year was 403 out of a total of 7415 examined. All the cases of malarial fever reported were contracted abroad. 4328 persons were successfully vaccinated. The death-rate among children under 12 months was 242·48 per 1000 births, as against 268·28 in the previous year. The death-rate of children under 5 years was 89·19 per 1000 of the population at that age, as compared with 105·43 in the previous year.

In 1914–15 3047 patients were admitted into the hospitals of Malta and Gozo, as against 3544 in the previous year, the number of deaths being 411 as against 398. In addition to these, 138,078 persons were attended by the district medical officers at the Government dispensaries or at their own residences, as against 140,795 in the previous year. There were 777 patients in the lunatic asylum on March 31st, 1915. The number of admissions was 160; 37 were discharged as cured, 11 as relieved, 8 not improved, and 26 as not subjects for the asylum; the deaths numbered 34. The inmates of the Leper Hospital increased from 108 on March 31st, 1914, to 109 at the end of the year; there were 15 deaths. The recipients of relief at the poor-houses at Malta and Gozo and the Orphan Asylum totalled 1111, as compared with 1357 in the preceding year, whilst the number of persons receiving outdoor relief was 4031. The total cost of the charitable institutions in Malta and Gozo (exclusive of works) was £71,917.

The highest temperature in the shade was 91·0° F. at Casal Crendi and St. Paul's Bay on June 23rd, and the lowest 40° at Casal Zebbug, Gozo, on Feb. 2nd. The mean temperature for the year was 63·7°, as compared with 65·2° in 1913–14. The mean temperature for the summer months of June to September was 72·7°; in 1913–14 it was 75·2°. The mean temperature for the winter months—January, February, and March—was 54·4°, or 0·2° higher than that of the preceding year. The total rainfall was 13·44 inches, or 1·671 inches lower than that of 1913–14; rain fell on 67 days. The prevailing winds were: N.W. on 81 days, E. on 38 days, S.W. on 37 days, W. on 32 days, and N. on 29 days. The average velocity of the wind was 9·6 miles per hour. The average number of hours of bright sunshine per day was 7·1 as compared with 7·9 in 1913–14. Two local earthquakes were registered—on March 19th and 23rd; 23 shocks from distant centres of disturbance were recorded by the Milne seismograph.

POISONING BY DOPE.

THE announcement is made in the *London Gazette* of Oct. 12th that the Secretary of State for the Home Department intends to make, at the expiration of 40 days of the publication of the notice, an Order under Section 73 (4) of the Factory and Workshop Act, 1901, applying the provisions of the said section to all cases of toxic jaundice occurring in a factory or workshop—that is, jaundice due to tetrachlorethane or nitro- or amido- derivatives of benzene or other poisonous substance. An account of poisoning by dope, which is the varnish containing tetrachlorethane used for aeroplanes, appeared in THE LANCET of Dec. 26th, 1914.

SPHAGNUM MOSS.

AT the last meeting of the Devon Education Committee it was decided to encourage the school children to gather sphagnum moss in order that it might be sent to the military hospitals, where, after treatment, it could be used as a dressing for wounds.

SUGARLESS JAM-MAKING AND FRUIT-BOTTLING.

THE above is the title of a little book by Helen Wyldon (printed by Polsue, Limited, of Gough House, Gough-square, Fleet-street, London, E.C.), in which she gives clear and admirable instructions on practical methods of preserving fruits. At this time in particular it would be well to study more seriously than has hitherto been the case the advantage of home preserving. The recipes described are simple and easily followed. The book is closed with a war seal, the amount accruing being for the benefit of wounded sailors and soldiers.

Dr. Robert Cantemerle.—The notes have been forwarded to the Admiralty, and any further communications will reach our correspondent direct.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct. 19th.

THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—W. Langdon Brown, Philip Hamill, J. Gordon Sharp): at 4.30 P.M.

Discussion:

On Treatment of Cerebrospinal Meningitis, opened by Prof. Sir William Osler, Bart., M.D., F.R.S. Dr. Calger, Dr. Michael Foster, Dr. Gardner Robb, and others will take part.

NOTE.—All Sections are invited to attend this discussion.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for the Election of Candidates to the Fellowship.

Thursday, Oct. 21st.

DERMATOLOGY (Hon. Secretaries—A. M. H. Gray, J. E. R. McDonagh): at 5 P.M.

Cases (at 4.30 P.M.):

Dr. W. Knowsley Sibley: (1) Angiokeratoma; (2) Horny Growth on Arm.

Dr. Dudley Corbett: Lymphangioma.

Dr. J. H. Sequeira: (1) Erythrodermia with Lymphocytosis; (2) Granuloma.

Dr. S. E. Dore: Urticaria Pigmentosa in an Adult.

NOTE.—Attention of Members of the Section is particularly drawn to the new arrangement for the selection of cases and the order of their exhibition.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Mr. E. Heron-Allen: A Statement upon the Theory and Phenomena of Purpose and Intelligence exhibited by the Protozoa, illustrated by Selection and Behaviour in the Foraminifera.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

HADWICK PUBLIC LECTURES, Hampstead Central Library, Finchley-road, N.

MONDAY.—8.15 P.M., Prof. D. N. Paton (Glasgow): Food in War Time—Food and Drink (illustrated by lantern slides). (Lecture III.)

For further particulars of the above Lectures, &c., see Advertisement Pages.

The following magazines, journals, &c., have been received:—Science Progress, Quarterly Journal of Experimental Physiology, Annali di Medicina Navale e Coloniale, Journal of Nervous and Mental Disease, Birmingham Medical Review, Surgery, Gynecology, and Obstetrics, Journal of Comparative Pathology and Therapeutics, Medical Review, Medicina Militar, British Journal of Inebriety, Medical Journal of South Africa, Edinburgh Medical Journal, Journal of Tropical Medicine and Hygiene, American Journal of Medical Sciences, Medical Review of Reviews, Middlesex Hospital Journal, Indian Medical Record, Maryland Medical Journal.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 13th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 7	30·240	N.E.	...	81	59	52	52	54	Overcast
,, 8	29·860	S.	...	90	59	50	49	51	Fine
,, 9	29·870	E.	...	79	56	51	52	53	Overcast
,, 10	29·900	E.	...	83	56	51	52	54	Overcast
,, 11	29·810	E.	...	71	60	51	52	54	Overcast
,, 12	29·827	S.	...	106	68	54	56	57	Misty
,, 13	29·984	W.	...	81	62	56	55	57	Overcast

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Mr. F. Aldridge, Lond.

B.—Lieutenant C. S. Bowker, R.A.M.C.; Dr. J. Le Fleming Burrow, Leeds; British Rural Products, Twickenham; Messrs. Butterworth and Co., Lond.; British Oxygen Co., Lond.; British Red Cross Society, Lond.; Captain C. L. Balkwill, R.A.M.C., France; Dr. C. G. S. Baronsfeather, Kingstown; Messrs. Burroughs Wellcome and Co., Lond.; Mr. F. E. Beddard, Lond.; Dr. Mary Bisset, Bhiwani, India; Mr. R. J. Burrow, Cheltenham; Dr. W. H. B. Brook, Lincoln.

C.—Mr. J. Cabburn, Lond.; Dr. Robert Cantemerle, Amsterdam; Messrs. Carfax, Lond.; Commissioner of the Police of the Metropolis, Lond.; Messrs. Condy and Mitchell, Lond.; Chesterfield and North Debyshire Hospital, Chesterfield, Secretary of; Dr. E P. Cumberbatch, Lond.; *Chemist and Druggist*, Lond., Manager of; Mrs. Cant, Lincoln.

D.—Mr. Walter Durham, Lond.; Mr. Alfred B. Dean, Lond.; Lord Derby War Hospital, Warrington, Clerk to the; Mr. M. Dee, Dungarvan; Captain J. H. Dible, R.A.M.C., France; Dr. Dee, Johannesburg; Mr. C. Deuntzer, Lond.

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I.—Institute of Hygiene, Lond.

J.—Prof. P. Wood Jones, Lond.; Jeyes Sanitary Compounds Co., Lond.; Dr. G. W. Johnson, Gainsborough; *Journal of the American Medical Association*, Chicago.

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